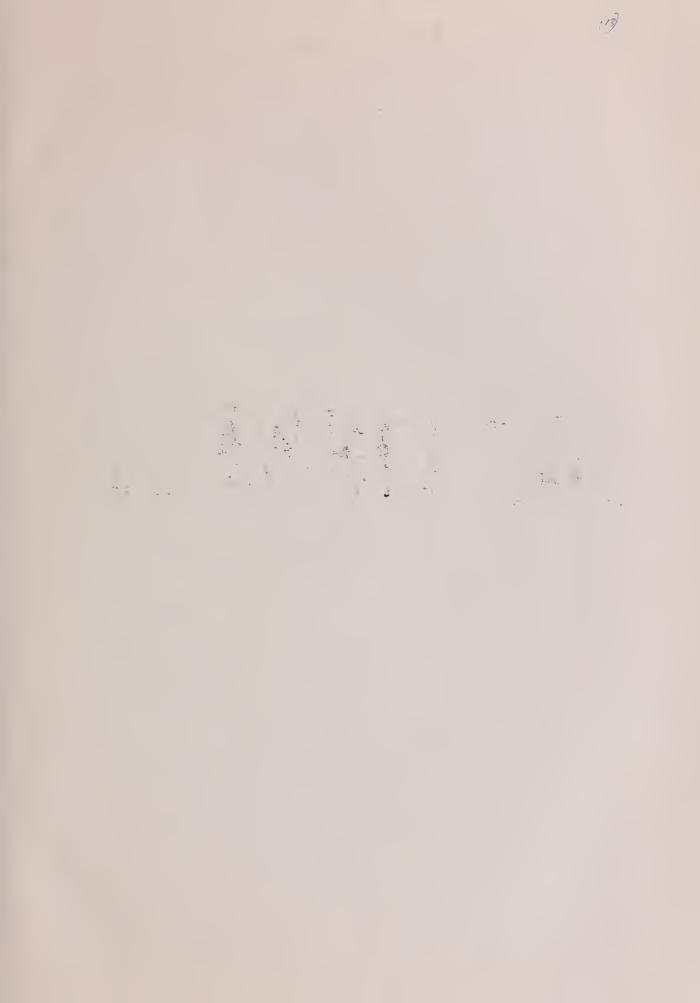
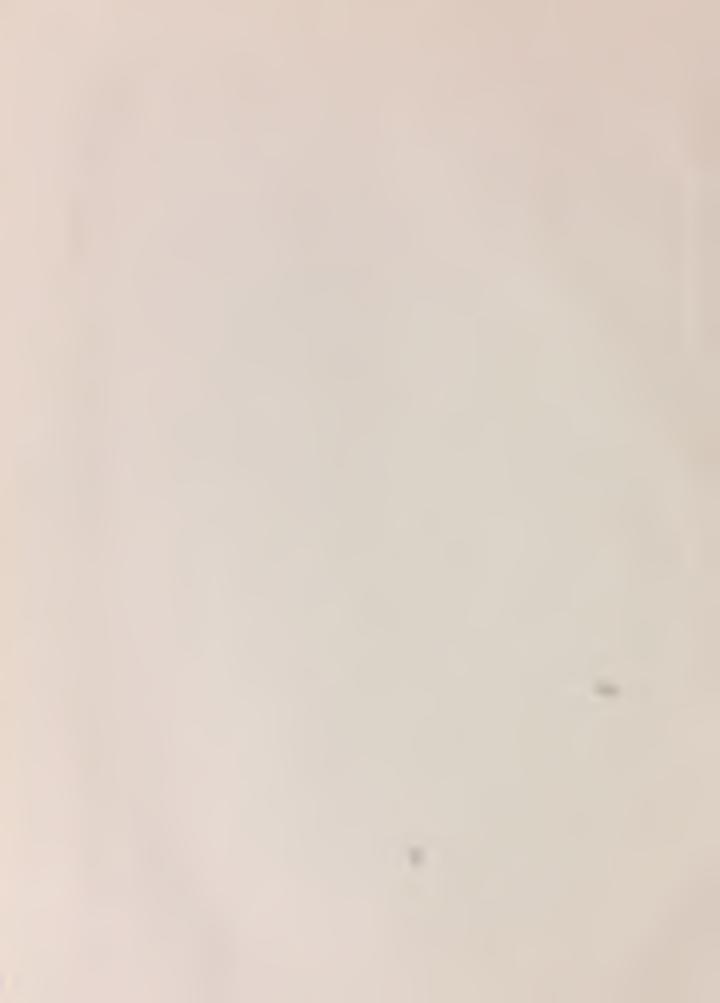


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STATE OF CALIFORNIA
The Resources Agency

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BULLETIN No. 69-72

CALIFORNIA HIGH WATER

1971-1972



NORMAN B. LIVERMORE, JR.
Secretary for Resources
The Resources Agency

RONALD REAGAN

Governor

State of California

JOHN R. TEERINK

Director

Department of Water Resources

COVER PHOTOGRAPH

A levee break on June 21, 1972, caused flooding of the Brannan-Andrus Islands in the Sacramento-San Joaquin Delta.

(DWR Photo No. 4243-41)

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FOREWORD

In its coverage of the 1971-72 water year, Bulletin No. 69-72 describes precipitation, runoff, flooding, and the general weather patterns that precede and coincide with storm periods. The Bulletin also includes tabulations of precipitation comparisons and peak streamflows and stages, hydrographs of streamflow and reservoir operations, and weir overflow graphs.

Data for this Bulletin, which is the tenth in an annual series, were supplied by the National Weather Service, the U. S. Geological Survey, the U. S. Army Corps of Engineers, the U. S. Bureau of Reclamation, and many other agencies, both public and private. Their cooperation is greatly appreciated.

John R. Teerink, Director Department of Water Resources The Resources Agency

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State of California October 10, 1973



STATE OF CALIFORNIA Ronald Reagan, Governor

THE RESOURCES AGENCY
Norman B. Livermore, Jr.
Secretary for Resources

DEPARTMENT OF WATER RESOURCES John R. Teerink, Director

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ABSTRACT

The water year 1971-72 was dry; California received only 50 percent of normal annual precipitation. By the end of May, the water year had been established as the driest of record at Red Bluff; the second driest near Folsom Dam, Fresno, and Bakersfield; and the third driest near Shasta Dam.

While most of the State underwent one of the driest seasons of record, the Smith River Basin experienced the second and third highest flood stages of record. Flood-producing storms hit the north coastal part of the State from January 18 to 27 and from February 22 to March 3.

A significant storm in the south coastal area between December 22 and 28 caused local flooding and mudslides. Flows in Carpinteria Creek on the coast of Santa Barbara County exceeded the previous record flood flows of January 1969.

June and August brought severe thunderstorms and localized flash flooding to the lower San Joaquin Valley. However, the only major flood event of the year for the Central Valley area was a leveel failure on Brannan-Andrus Islands in the Sacramento-San Joaquin Delta.

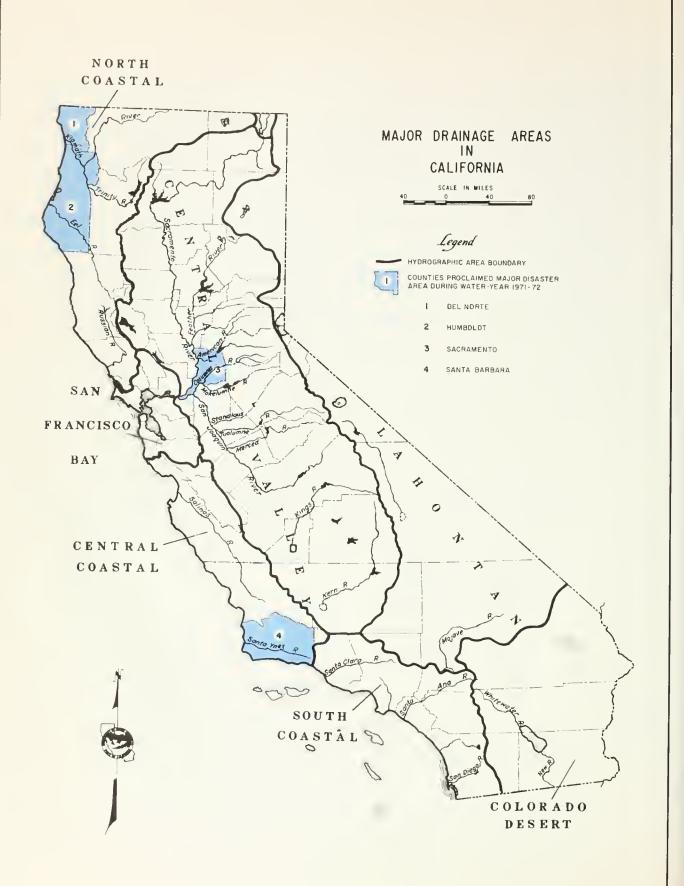
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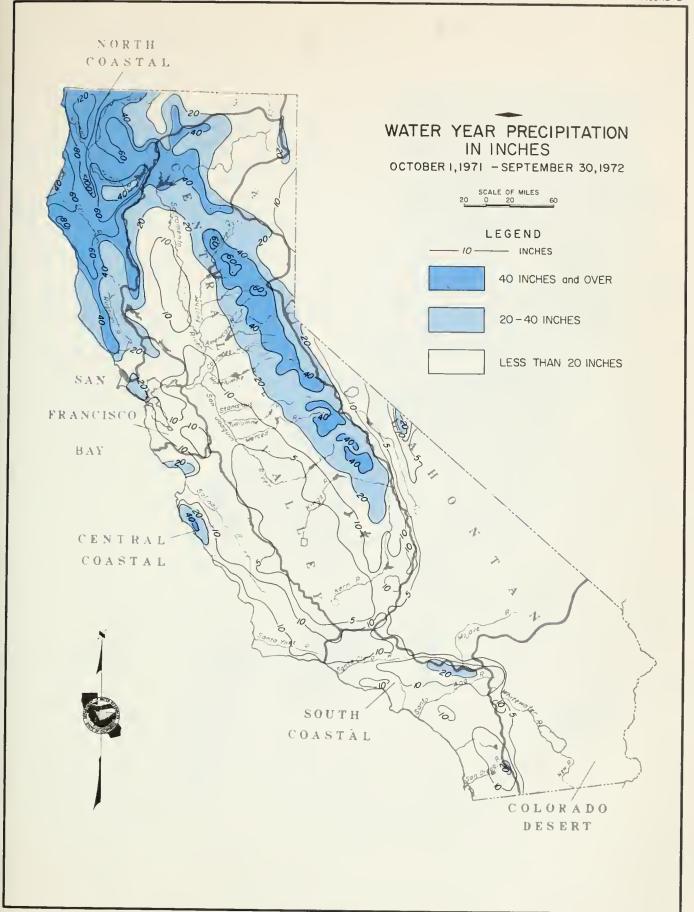
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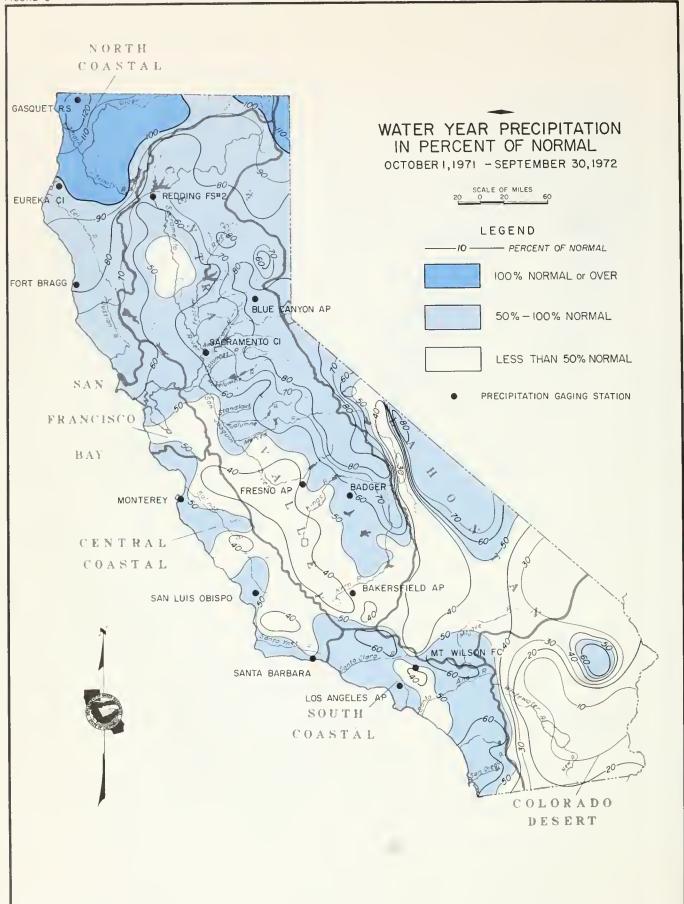
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INTRODUCTION

High water events were notably scarce in California during the water year from October 1, 1971, through September 30, 1972. The winter season was generally characterized by belownormal precipitation in the Sierra Nevada. Because of these weather patterns, runoff to the major rivers and streams was generally well within channel capacities, while a nearly normal water supply in the upstream storage reservoirs was maintained.

Another characteristic of the season was the concentration of storms in the extreme northern portion of the State. This pattern produced two major floods on the Smith River in Del Norte County and local flooding and mudslides in the northern portion of Humboldt County. Typical of the season's erratic precipitation pattern was the storm that dumped nearly 24 inches of rain in the Smith River Basin in January and produced the second highest flood stage of record near Crescent

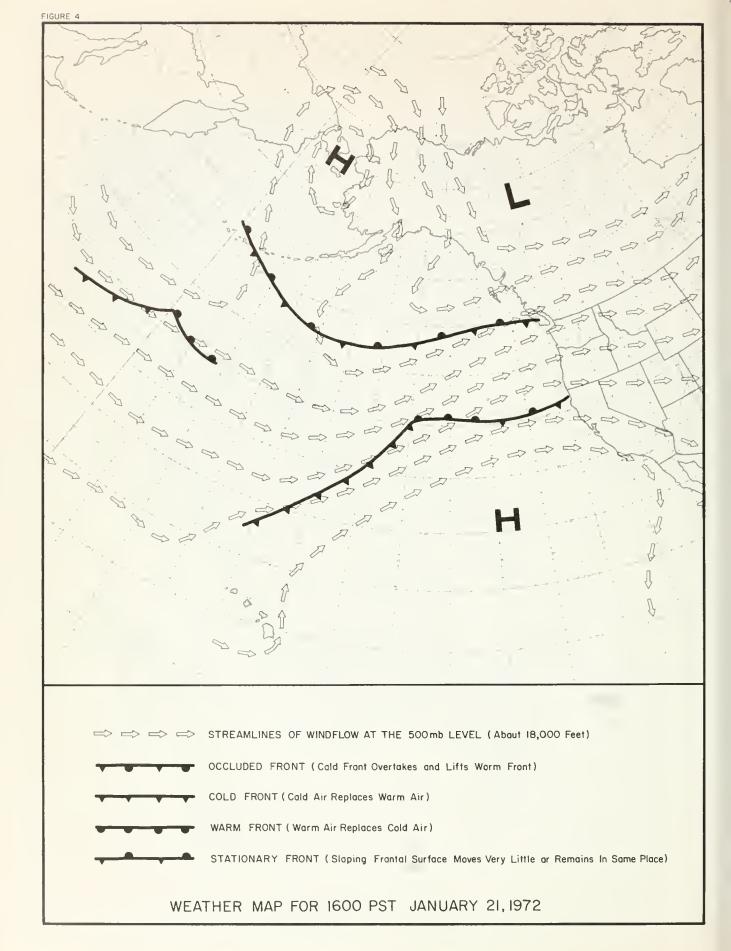
City, yet produced only about $4\frac{1}{2}$ inches of rain at Redding, only about 1 inch at Sacramento, and a trace at Bakersfield.

Untypical of the water year was a storm that struck the South Coastal Area in late December, producing massive traffic tie-ups along the highways over the Tehachapi Mountains, local flooding in Los Angeles, and flash floods along the Santa Barbara coast. Also contrary to the general pattern of the water year were severe thunderstorms over the southern part of San Joaquin Valley in June and August.

An unexpected event for any year was the flood that occurred on June 21, 1972, when a levee failed in the Sacramento-San Joaquin Delta, inundating low-lying Brannan-Andrus Islands. The failure occurred during moderate tides and low flows in the rivers. Suits totalling over \$50 million were subsequently filed on behalf of the flood victims.

Table 1: PRECIPITATION AMOUNTS AT SELECTED STATIONS DURING WATER YEAR 1971-72

Station	Elevation	Tot	Maximum One-Day Amounts				
Common American And Cont. of Cont. 1981 and addinguish addingui		November 22-30	December 21-29	January 17-28	February 22- March 3	Day	Amount
North Coastal Area							
Gasquet RS	384	10.16	5.72	23.66	26.70	3-11	8.58
Eureka CI	43	2.30	2.08	7.40	7.02	1-21	2.49
Fort Bragg	80	1.64	1.84	4.43	5.77	1-21	1.17
Sacramento Valley Area					2.11	1-21	7.47
Redding FS #2	580	2.81	2.61	4.49	4.04	11-28	1.51
Blue Canyon AP	5,280	2.51	8.46	6.38	8.97	12-22	2.72
Sacramento CI	19	0.16	3.94	1.07	0.26	12-24	0.93
San Joaquin Valley Area						12.2	0.75
Badger	3,030	0.32	5.19	1.05	0.0		
Fresno AP	328	0.07	1.96	0.36	Trace	12-27	0.63
Bakersfield AP	475	Trace	0.98	Trace	0.05	6-07	1.09
Central Coastal Area							2.00
Monterey	345	0.76	3.10	1.23	0.25	12-25	0.98
San Luis Obispo	31.5	0.14	6.06	1.03	0.15	12-27	1.45
Santa Barbara	5	0.0	7.16	0.12	0.0	12-27	1.96
South Coastal Area			,		•		
Mt. Wilson FC	5,709	0.0	9.87	Trace	0.0	12-24	3.0
Los Angeles AP	105	0.0	5.17	0.09	0.13	12-27	2.25



WEATHER PATTERNS OF THE 1971-72 SEASON

October 1971: The latter half of the month showed some promise of precipitation when the hemispheric flow pattern in the upper atmosphere brought a trough of low pressure near the West Coast that sent a series of storms across California. Despite these storms, however, precipitation for the entire State for October was below normal, except along the southern coastal area.

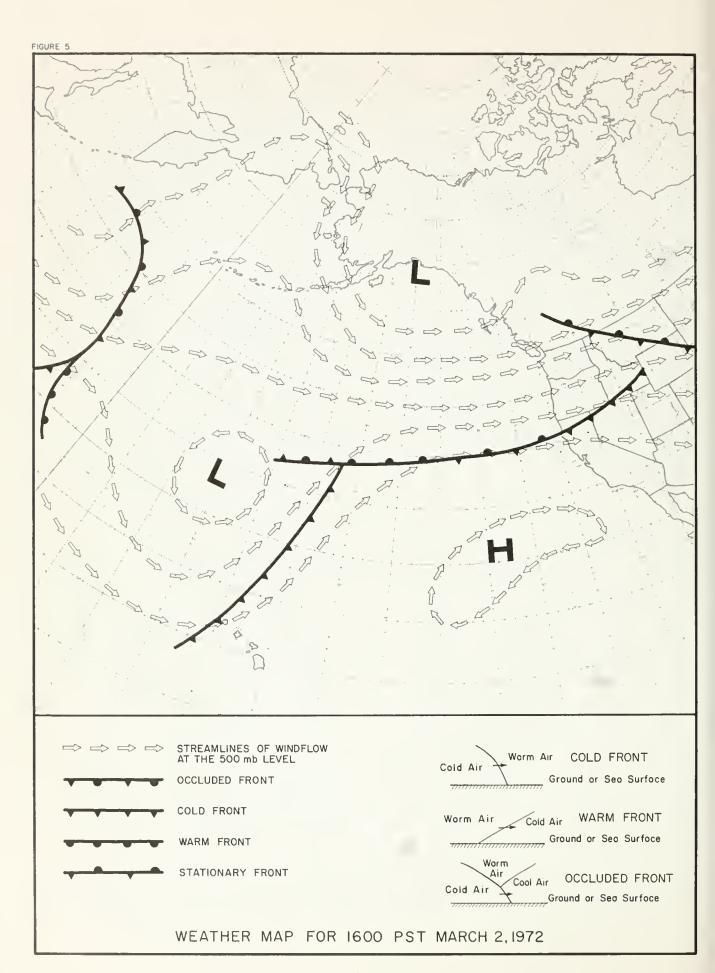
November 1971: The flow pattern had a strong blocking high* pressure center in the central Atlantic Ocean and a zonal flow over the Pacific Ocean. A sequence of storm systems from the Pacific brought above-normal precipitation to California from November 9 to 14 and again from November 23 to 30 in the north coastal area and in the Siskiyou Mountains and the northern Sierra Nevada Range. The monthly accumulation at Eureka, for example, was 138 percent of normal.

December 1971: This was the only month during the season when precipitation reached the southern half of the State. The rainy periods, especially in the northern half, occurred in the first half of the month and from December 21 through 29. The mean flow pattern during December consisted of a trough of low pressure over the western United States, causing a track of storm systems over California that made this a particularly cold, wet month. Monthly precipitation totals were above normal, except in the northern Coast Range and in the low desert. A significant storm occurred from December 21 to 29 along the coast between Santa Barbara and Los Angeles, causing local flooding and mudslides.

January 1972: Precipitation was below normal, except along the most northern coastline, which experienced a significant flood-producing storm from January 17 to 28. Weather conditions at the time formed the classic California flood-producing pattern: a blocking high pressure center over western Alaska and the Bering Sea, a low pressure center over the Gulf of Alaska, and a stream of warm, moist air flowing from southern latitudes lying well south of the block that met the cold air circulating around the Gulf lowpressure center. The onshore flow over Northern California was strong, and copious orographic precipitation occurred. While the rainy period spanned 10 to 11 days, the heaviest precipitation fell in a three-day period, January 20-22. A weather map for January 21, 1972 is shown on Figure 4. Statistics on rainfall amounts are given in the following section, "Rainfall Runoff". An isohyetal map for the north coastal area for January 17 through 28 is shown on Figure 6.

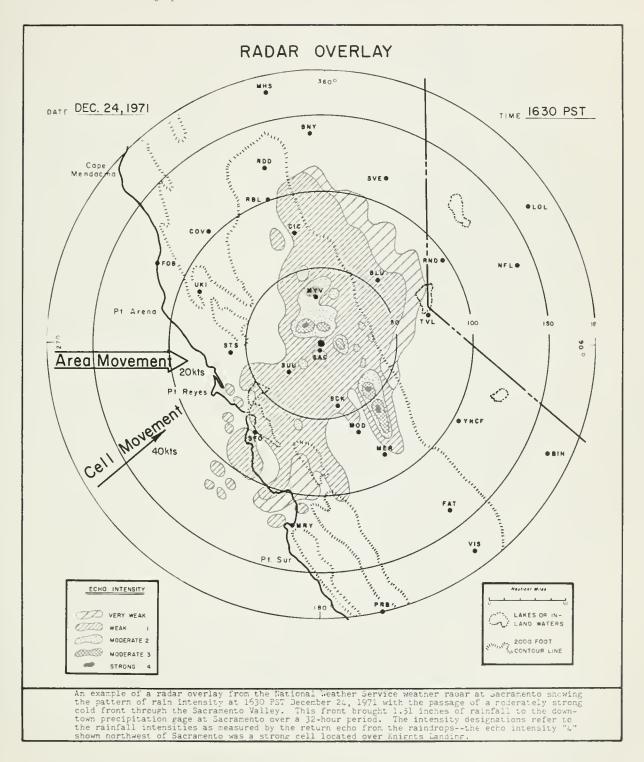
February and March 1972: These months are customarily expected to continue the usual winter pattern of rainfall at low elevations and an accumulating snowpack at high elevations. However, in 1972 these months proved to be a disappointment. Statewide precipitation was below normal and snowpacks at mountain stations were as much as 6 to 7 inches less than normal. Precipitation occurred from February 4 to 6 and from February 22 to March 3. During the second period, precipitation was heaviest in the northern half of the State, and it weakened to negligible amounts in the southern half. confluence of warm and cold air masses over Oregon and Northern California

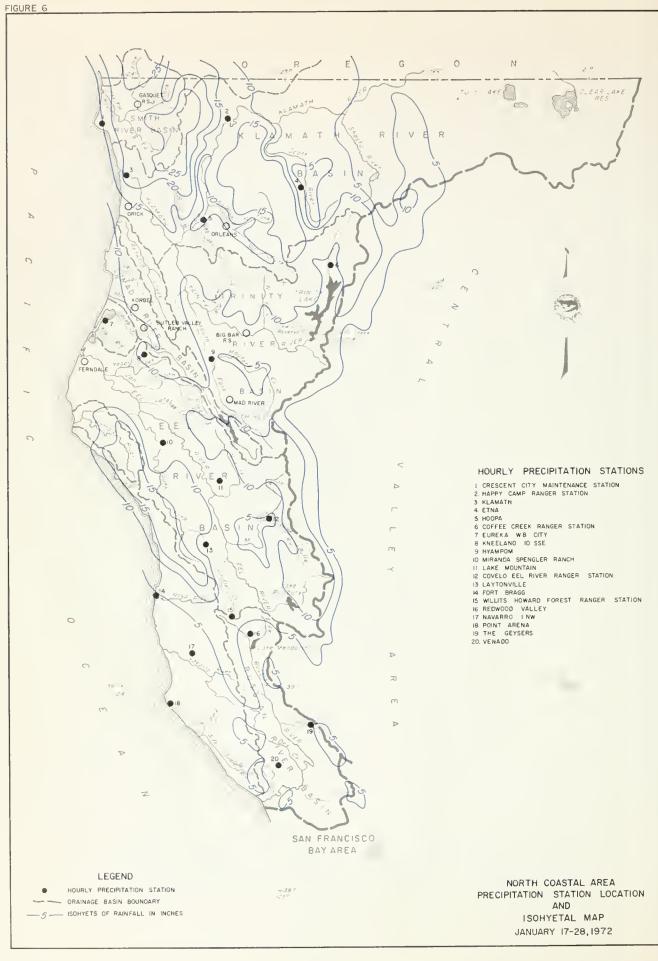
^{*}Blocking high (or blocking anticyclone) is any high pressure center which remains nearly stationary or moves slowly in comparison to the normal west-to-east motion upstream from its location. The high effectively blocks, or impedes, the movement of migratory low pressure centers (or cyclones) across the latitudes of the blocking high.



caused strong orographic release of precipitation over the coastal mountain ranges of California. The flow pattern of the atmosphere over the eastern Pacific at that time closely resembled the January pattern that

also brought heavy rains. A weather map for March 2, 1972 is shown on Figure 5. An isohyetal map for the north coastal area covering the period February 22 through March 3, 1972 is shown on Figure 7.





RAINFALL RUNOFF

North Coastal Hydrographic Area

Storms that move into California usually hit the North Coastal Hydrographic Area first, and are usually more frequent and intense than in any of the other six major hydrographic areas of the State. The area's annual precipitation averages, among the highest in the State, range from almost 30 inches in the Russian River Basin to more than 100 inches at some locations in the Smith River Basin. These large amounts of rainfall produce almost 40 percent of the average annual runoff for the State. Most of the North Coastal Area lies below 8,000 feet and receives very little snow; therefore, runoff is often almost immediate and sometimes devastating.

This area encompasses the stream basins from the Russian River to the Oregon border which drain west to the Pacific Ocean. It is approximately 270 miles long, north to south, and varies in width from 180 miles along the Oregon Border to 30 miles at the southern end of the Russian River Basin.

Major rivers and tributaries contained in this hydrographic area are the Smith, Klamath, Trinity, Mad, Eel, and Russian Rivers, and Redwood Creek. The smaller streams include the Elk, Mattole, Ten-Mile, Noyo, Navarro, and Gualala Rivers, and Jug Handle and Hollow Tree Creeks.

Water wear 1971-72 started weakly in this area, with only 35 percent of the monthly normal rainfall received in October 1971; however, the remaining winter months compensated by producing a nearly normal water year. The geographic spread of the precipitation, however, was unusually nonuniform; the northern portion received approximately 130 percent of normal rainfall. whereas the Russian River Basin at the southern end received less than 50 percent of normal. The concentration of storms at the northern end produced two major floods on the Smith River in Del Norte County and local flooding and mudslides in the northern portion of Humboldt County. Except for the Smith River, major streams remained below flood stage throughout the year.

Hydrographs of selected stations for the two major runoff periods for the Smith, Klamath, and Mad Rivers and for Redwood Creek are presented on Figures 8 and 9:

Isohyetal maps for the two major storms are shown on Figures 6 and 7.

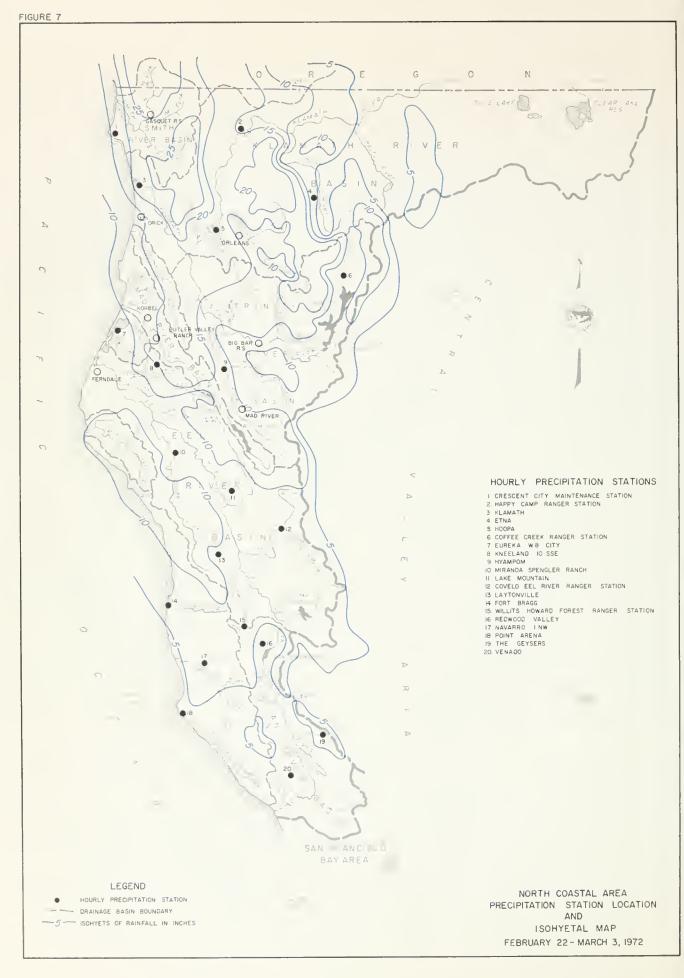
Peak flows and stages for all monitored streams in this area are included in the Appendix.

Smith River Basin

The Smith River, the northernmost stream in the North Coastal Hydro-graphic Area begins in Oregon, winds through the northwest corner of California, and discharges into the Pacific Ocean a few miles south of the Oregon border. It drains approximately 720 square miles of rugged mountains and foothills, most of which lie below

3,000 feet, although some mountains along the eastern edge rise to 5,000 feet.

The basin is usually the first region of the State to be reached by storms. Rainfall averages nearly 30 inches per year; some stations receive more than 110 inches per year. Rainfall exceeding one inch per day occurs in this basin about 20 days of every year.



Most of this precipitation falls between October and April, causing high river stages and some flooding several times a year. Because the soil mantle on the steep mountain slopes is generally loosely compacted, prolonged and intense rains often cause damaging mudslides.

Beginning about mid-October 1971 and continuing until mid-January 1972, a series of light to moderate storms passed through the basin, producing approximately 90 percent of normal precipitation. During this period the Smith River approached warning stage twice (November 26 and December 6) but receded quickly and remained at low stage until mid-January.

During January 17-28, 1972, more than 20 inches of rain fell over most of the basin; Gasquet Ranger Station received 23.7 inches of rain during this period. The storm was particularly severe during the three days from January 20-22: Gasquet Station received 15.5 inches and Crescent City received nearly 8 inches. This storm produced the second highest flood stage of record on the Smith River, exceeded only by those produced by the 1964 flood (Figure 8). Local runoff and overflow from Smith River inundated much of the low-lying farmland, county roads, and resort areas west of U. S. Highway 101 between the communities of Smith River and Fort Dick. The intense rainfall also produced numerous slides that damaged state and county highways; hardest hit was South Fork Road, which suffered an estimated \$800,000 in damage from slides and washouts. Agricultural losses were estimated at over \$1,000,000.

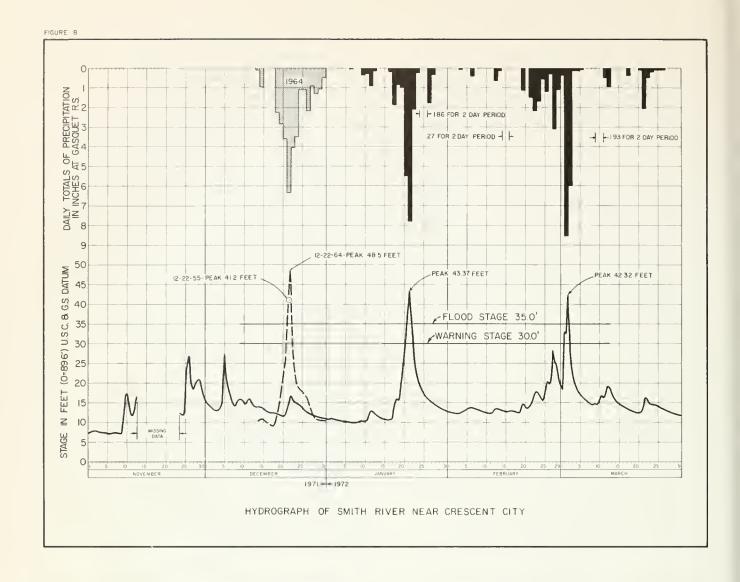
Miscellaneous damages caused by this flood included loss of an evacuated mobile home that burned and was washed away, loss of over a dozen head of dairy calves, loss of nursery plants from a bulb farm, loss of a suspension footbridge across Mill Creek in the Jedediah Smith Redwoods State

Park, and blockage of the municipal water supply for the community of Smith River. The Del Norte County Board of Supervisors declared a local state of emergency on January 24; the State and Federal Governments followed suit on February 29 and April 6, respectively, making low-cost loans available to residents for repair of flood damages.

Lowland flooding by this January storm near Fort Dick was apparently intensified by a sandbar blocking the outlet from Lakes Earl and Talawa. This is a chronic problem for this area, and it worsens when conditions prevent crews from quickly opening the outlet. The lakes broke through the sandbar shortly after noon of January 22; the outlet remained open during the remainder of the season.

Following the January flood, the basin enjoyed three weeks of relatively dry weather, during which only about 2.7 inches of rain fell. Rain fell again from February 22 through March 3, dropping another 20-plus inches over most of the basin. Gasquet Ranger Station received 26.7 inches of rain during this storm series, over 14 inches of which fell during the 48 hours between 8:00 a.m., March 1, and 8:00 a.m., March 3. The Smith River reached the third highest stage of record and again flooded most of the low-lying land still recovering from the January flood. Heavy silt and debris deposits were again prevalent. State and county roadways once more received major damage. A major slipout on Highway 101 at Last Chance Grade south of Crescent City caused two deaths, and earth slides along Highway 199 caused two more deaths. Highway 199 was closed for 85 hours.

Following the downpour on March 1 and 2, rainfall subsided sufficiently to permit the Smith River and smaller streams to recede and allow the low-lands to drain. By mid-morning of March 4, the stage of Smith River near Crescent City had dropped 20 feet from







Flooded ranch (left) and bulb farm near the community of Smith River, Del Norte County, on January 22, 1972.

(Photo by Department of Water Resources)

its peak (Figure 8). Two additional storms during March brought the total rainfall for the month to 22.4 inches at the Gasquet Ranger Station but caused only minor rises on the Smith River. During April, a series of moderate storms brought an additional 6 to 9 inches of rain to the basin, but the storms were sufficiently scattered so that again only moderate rises occurred on the Smith River. Gasquet Ranger Station received 9.46 inches of rain in April, bringing the season total there by May 1 to 110.5 inches. Normal rainfall for this period at this station is approximately 85.5 inches.

Klamath River Basin

Lying south and east of the Smith River Basin is the 15,700-square-mile Klamath River Basin, a rugged mountain watershed of which nearly a third is located in Oregon. Major tributaries to the Klamath River at the Salmon, Scott, Shasta, and Trinity Rivers. The Klamath River Basin is a prime recreation area that comprises over one-half of the entire North Coastal Hydrographic Area. Its mountains reach elevations of more than 8,000 feet.

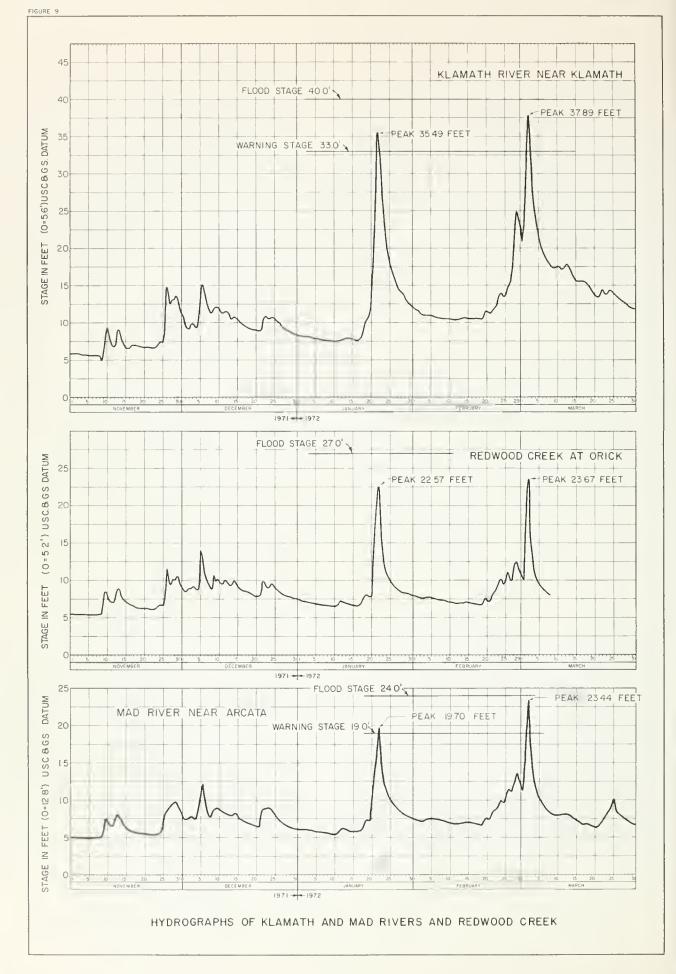
Average annual rainfall for this basin ranges widely from approximately 20 inches in the drier interior to more than 85 inches near the coast. The higher elevations receive some snowfall, varying from approximately 12 inches average annual at Big Bar Ranger Station to over 25 inches average annual at Happy Camp Ranger Station.

The Klamath River Basin was one of the few major basins in the State to receive normal to above-normal rainfall for the water year. However, as did most of the State, this basin received subnormal rainfall during October, above-normal rainfall during November, and near-normal rainfall in December.

By mid-January the western portion of the basin had received approximately 20 inches of rain and the coastal area near Klamath had received more than 30 inches. During this period, the rainfall was sufficiently spread so that no appreciable rises in the major streams occurred.

Beginning on January 17, the storm series that produced the second highest flood stage of record on the Smith River also entered this basin. During a 3-day period, the storm dropped more than 14.5inches of rain at Klamath and slightly less than 10 inches at Orleans, about 30 miles inland. However, the high-intensity rainfall did not extend into the Trinity River Basin or to the eastern tributaries of the Klamath. The Trinity River crested approximately 14 feet below flood stage at Hoopa; the Klamath River peaked approximately 4 feet below flood stage at Klamath Glen. Although no major flooding occurred. the areas hit by the intense rainfall did experience local flooding. Several county roads were flooded; U. S. Highway 101 was flooded just north of Kla. math but remained open; State Highway 169 washed out at two locations; and State Highway 96 was closed temporarily by two slides near Orleans.

The first three weeks of February brought only light rains to the basin: Klamath received 3.1 inches: Orleans received only 1.2 inches. On February 22, the second major series of storms entered the basin. By March 3, Klamath had been drenched with almost 23 inches of rain and Orleans, with almost 16 inches; within a 24-hour period on March 2, Klamath recorded 8.9 inches and Orleans recorded 5.0 inches. This storm brought the Klamath River to within 2.2 feet of flood stage at Klamath Glen. Again no major flooding occurred, but many county roads were closed by flooding or land slippage, and State Highway 169 was closed by a major cave-in and 8 minor slides and slip-outs. Approximately 400 persons were temporarily stranded at



Klamath Glen by these closures. Floodplain zoning and the recently completed levee project at Klamath Glen prevented damage in areas previously subject to flooding. However, several homes were damaged by slides, erosion, and accumulation of silt and debris along minor streams, creeks, and gullies. Humboldt County was declared a disaster area by President Nixon on April 1, 1972.

The western portion of the basin received above-normal rainfall during April, but no significant rises in the river occurred.

Redwood Creek Basin

Redwood Creek drains a long, narrow basin sandwiched between the Klamath-Trinity and the Mad River Basins. It extends 55 miles southwest from the coast and contains approximately 279 square miles of mountainous terrain. With a maximum elevation of 4,600 feet, the basin receives very little snowfall; runoff causes sharp rises in Redwood Creek almost immediately following intense rainfall.

Redwood Creek Basin received slightly above-average rainfall for the water year. The two major storm series that caused flooding on the Smith River this season also brought appreciable rain to this basin. Ten inches of rain fell within two days on January 21 and 22, causing sharp rises in Redwood Creek and its major tributary, Prairie Creek. The flows were well contained by the levees on Redwood Creek built in 1968, but Prairie Creek flooded lowlands near its mouth just north of Orick.

Following the January storms, the basin experienced three weeks of relatively dry weather, which allowed the area to drain. However, on February 22, the second major storm series entered the basin, bringing several inches of rain within a week and again saturating the soil. On March 2, the rain became a downpour and deposited 4.6 inches at Orick within 24 hours; runoff brought

Redwood Creek at Orick to within 3.5 feet of the design flood stage. The levees contained the flows but suffered major erosion damage estimated at \$30,000. Approximately 300 feet of rock protection and embankment along the right bank levee was eroded; however, the core of the levees held and prevented an estimated \$800,000 potential flood damage.

The basin received slightly aboveaverage rainfall during April, but less than one-half of average during May.

Mad River Basin

The Mad River drains a long, narrow basin that extends approximately 80 miles southeast from the coast north of Eureka and contains slightly less than 500 square miles. Less than 20 square miles are classified as valley land. The higher mountains of the basin reach elevations of 6,000 feet and receive some snowfall.

Ruth Dam and Reservoir are located on Mad River approximately six miles upstream from the Highway 36 Bridge at Mad River Park. The dam is a municipal water supply facility and has an ungated spillway with the crest at an elevation of 2,654 feet, and a gated release of about 380 cfs, a negligible capacity (from a flood-flow point of view). The maximum spill and release of record occurred on December 22, 1964, when about 32,000 cfs of flow was recorded. The maximum spill during the season was approximately 4,400 cfs on February 29.

This basin marked the approximate southern limit of the high-intensity storms of January and March of this season. The January storm dumped 9 inches of rain in two days at Korbel but tapered off inland: during these two days, Butler Valley Ranch received about 5 inches and Mad River Ranger Station received about 4 inches; just 25 miles south of Korbel,



Above, slipout on Last Chance grade, U. S. Highway 101, near Crescent City, Del Norte County, March 3, 1972. Below, slides and slipouts along South Fork Road on Smith River, Del Norte County, March 3, 1972.

(Photos by Harris, Crescent City, California)



Ferndale received only 3.75 inches during the same period. The January storms brought Mad River to within 4.5 feet of flood stage at Arcata and caused local flooding and slides.

The March storm followed the pattern of the January storm, but it had a higher single-day intensity and extended farther inland. On March 2, Korbel received 5.7 inches of rain, Butler Valley Ranch received 4 inches, and Mad River Ranger Station received 1.9 inches. Runoff from this downpour brought Mad River to within one-half foot of flood stage at Arcata, and eroded the south bank near the mouth between Canal School and Tyee City. Approximately 1,200 feet of rock revetment was lost along this reach.

Although Mad River remained below flood stage, considerable flooding

again occurred along smaller tributaries and along streams flowing directly into Humboldt and Arcata Bays. Debris plugged the railway bridge on Dave Creek at Blue Lake and caused minor flooding of the business district of that community. Maple Creek deposited considerable debris and logs along the channel, posing a hazard to the Korbel Road Bridge downstream. Jacoby Creek flooded low-lying land, causing water damage to at least three dwellings and depositing silt on pasture land. The county road systems were hard hit with flooding and slides. No major damage or fatalities were reported to have been caused by this storm.

The basin received above average rainfall during April, but no further significant rises in the river occurred during the remainder of the season.



Levee erosion along Redwood Creek, Humboldt County, March 7, 1972.

(Photo by U.S. Corps of Engineers)

Central Coastal Hydrographic Area

The Central Coastal Hydrographic Area includes drainage areas of the coastal streams from Pajaro River, which separates Santa Cruz and Monterey Counties, south to the Santa Barbara-Ventura County boundary. Principal streams are the Pajaro, Salinas, Santa Maria, and Santa Ynez Rivers.

Average annual precipitation ranges from light to moderate and generally decreases from north to south and from west to east. The southern portion of Salinas Valley receives approximately 12 to 14 inches of rainfall annually, whereas the Big Sur area receives from 40 to 60 inches.

During the water year 1971-72, the Central Coastal Area experienced the general subnormal precipitation felt in the valley floors of Sacramento-San Joaquin Basins. Runoff in the major streams was only 25 to 30 percent of normal--except along the southern Santa Barbara Coast, which suffered extensive damage from flooding and mudslides during late December 1971, and which was subsequently declared a disaster area.

Santa Barbara Coast

The Santa Barbara Coast drainage area consists of the south slope of the Santa Ynez Mountains from Point Arguello near the mouth of Santa Ynez River to near the Santa Barbara-Ventura County line. It includes numerous small streams that drain directly into the Pacific Ocean.

On October 6, 1971, a brush fire started in Romero Canyon east of Santa Barbara. Spreading north and east, the fire burned almost 14,000 acres of heavy brush on the southern slopes of the Santa Ynez Mountains. Damage to the watershed was estimated at \$1 million. The denuded area also posed a threat of flooding and debris damage in the event of heavy winter rains, and emergency measures were taken to reduce this threat as far as possible. These measures included removal of snags and fallen trees, construction of small debris dams, and enlargements of stream channels. The remedial work was performed by the County and was partially financed by the State under authority of AB 3099.

Following the Romero fire, the area received only slight rainfall through

October, November, and the first three weeks of December. However, beginning December 21, a major storm entered the South Coastal Area and, with only two brief interludes, lasted through December 27. The storm reached a climax on December 27 with a predawn deluge over the burned-out watershed of the Santa Barbara Coast. Runoff totals in Romero Creek, Toro Canyon Creek, Santa Monica Creek, Franklin Creek, and Carpinteria Creek were of flash-flood proportion and carried heavy loads of debris and mud. Highway 101 near Carpinteria was blocked for 8 hours when a 3-foot wall of mud and water pushed across it toward the ocean. Several roads were blocked by flooding, mud, debris, and damaged bridges. In the Carpinteria area, ten to fifteen families were evacuated, and their homes were damaged by the mud flows. No deaths or serious injuries were reported.

The peak flows in these streams reportedly exceeded the previous record flows of January 1969. However, comparisons of rainfall during the January 1969 and December 1971 storms (see Table 2), and comparisons of peak flows of December 27, 1971 in San Jose Creek (unburned) and Carpinteria Creek (burned) (see Table 3) indicate that the



Carpinteria High School, Carpinteria, Santa Barbara County. Man is pointing to high-water mark left by flooding during December 1971.



(Center and bottom)
Flooding and erosion of
citrus groves along
Carpinteria Creek, Santa
Barbara County, during
December 1971.



Photos by Department of Water Resources

December 1971 flooding was more attributable to the Romero fire than to the intensity of the storm. Nonetheless, the local flood control agency reported that the remedial work performed immediately after the Romero fire was of great value in limiting the damage caused by the runoff.

After the December storm, the area received slightly over 1 inch of rain during the remainder of the season. Approximately 80 percent of the season's total rainfall occurred during the December 21-27 storm.

Table 2: PRECIPITATION COMPARISONS, STORMS OF JANUARY 1969 & DECEMBER 1971 (INCHES)

	January 18-27, 1969			December 21-28, 1971					
Station	l-hr	6-hr	24 - hr	Storm	l-hr	6-hr	24-hr	Storm	W-Y
Carpinteria/ Reservoir					0.6	2.0	2.1	6.5	8.9
Juncal Dam ²			16.0	43.8			3.7	8.3	11.2
Santa Barbara 3/	0.7	2.5	4.0	14.5	0.5	1.7	2.6	7.3	8.6
San Marcos Pass	0.9	4.4	8.2	32.5			5.0	15.5	19.2

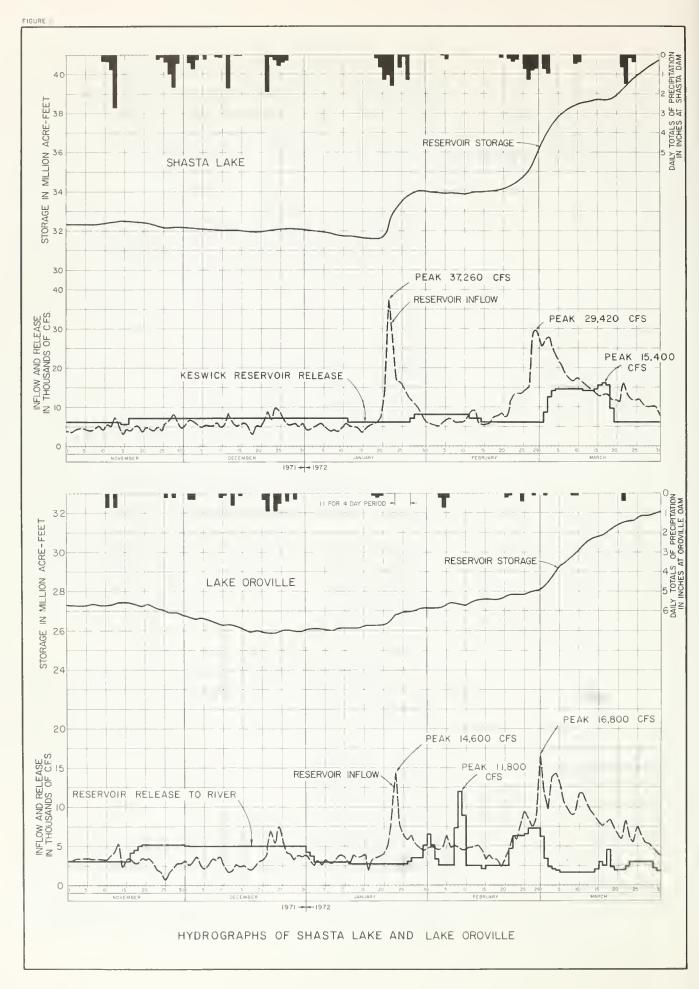
Table 3: RUNOFF COMPARISONS, FLOODS OF JANUARY 1969 & DECEMBER 1971 (CUBIC FEET PER SECOND)

Date	Maximum Discharge						
	San Jose Creek near Goleta ¹ /	Carpinteria Creek near Carpinteria ² /					
1/25/69	2,000 (maximum of record)	4,560 (maximum of record to date)					
12/27/71	430	8,880 (new maximum of record)					

^{1/} Watershed not burned by the Romero Fire, October 1971.

2/ Watershed burned by the Romero Fire.

 $[\]frac{1}{2}$ About $2\frac{1}{2}$ miles NE of Carpinteria; Carpinteria Creek drainage. $\frac{2}{2}$ About 7 miles N of Carpinteria; Santa Ynez River drainage. $\frac{3}{4}$ About 10 miles W of Carpinteria; Mission Creek drainage near coast. $\frac{4}{4}$ About 17 miles WNW of Carpinteria; San Jose Creek drainage.



Central Valley Hydrographic Area

The Central Valley Hydrographic Area is approximately 500 miles long and 120 miles wide. It stretches from Goose Lake near the Oregon border to the Tehachapi Mountains south of Bakersfield, and encompasses the watersheds of all rivers and streams draining the eastern slopes of the Coast Range and the western slopes of the Sierras.

Two major rivers, the Sacramento and the San Joaquin, drain the entire Central Valley; all minor streams and rivers are tributary to either the Sacramento or the San Joaquin River, or drain into the Tulare Lake Basin south of Fresno. Principal tributaries to the Sacramento River are the McCloud, Pit, Feather, Yuba, Bear, and American Rivers flowing from the Sierras, and the Cottonwood, Stony, Cache, and Putah Creeks flowing from the Coast Range. Principal tributaries to the San Joaquin River are the Chowchilla, Fresno, Merced, Tuolumne, Stanislaus, Calaveras, Mokelumne, and Cosumnes Rivers, all flowing from the Sierras. No major streams flow to the San Joaquin from the Coast Range. The Kern, Kaweah, Kings, and Tule Rivers drain from the Sierras to the Tulare Lake Basin. During high stages, some flow from the Kings River reaches the San Joaquin River by way of Fresno Slough.

Average annual precipitation in the Central Valley Hydrographic Area decreases progressively from approximately 70 inches in the northern portions to less than 10 inches in the southern portions. As in most of California, most of this precipitation results from several major storms during the winter months. These storms create potentials for flood-producing runoff to the Sacramento and San Joaquin Rivers. Fortunately, heavy snowfall is a winter feature of the Sierras; therefore, much of the poten-

tial runoff is stored in snowpack until spring.

More than 60 significant upstream reservoirs, with a combined storage capacity of over 22 million acre-feet. reduce winter flows in the valley streams below the dams. Over 15 million acre-feet of this storage capacity are provided by nine major multiple-purpose dams: Shasta Dam on the Sacramento River, Oroville Dam on the Feather River, Bullards Bar Dam on the Yuba River, Folsom Dam on the American River, New Hogan Dam on the Calaveras River, New Don Pedro Dam on the Tuolumne River, New Exchequer Dam on the Merced River, Friant Dam on the San Joaquin River, and Pine Flat Dam on the Kings River.

For the Central Valley Area, water year 1971-72 began cold and dry, and, with some extreme exceptions, followed the same general pattern through the year. The valley floors and western watersheds received only from 40 to 60 percent of normal rainfall for the season; the Sierra watersheds fared considerably better with 70 to 80 percent of normal precipitation -- sufficient to provide a near-normal water supply in upstream storage reservoirs. Runoff produced no flooding or significant stages to the major streams, but other weather extremes marked the passage of the winter season.

October 1971 set the pattern for the area with rainfall as low as 10 percent of normal in the valleys, but with snowfall of significant depths at high elevations; Mt. Shasta received a record snowfall for the month. Low temperature records for October were set at some locations, such as Blue Canyon, Fresno, and Bakersfield.

November continued the pattern; rainfall on November 11 at Red Bluff broke a 136-day dry spell.

DECEMBER 20 HYDROGRAPHS OF SACRAMENTO AND SAN JOAQUIN RIVERS

0

December and January were notable for the cold, wet fog that gripped the interior valley from Sacramento to Bakersfield. The Sacramento River experienced its first significant rise of the water year late in January, but it was substantially below flood stage. A near-normal snowpack was maintained in the Sierras.

The February 22 - March 3, 1972 storm series that drenched the North Coast skirted the northern portion of the Central Valley, struck a glancing blow at the Sierras, and almost missed Sacramento. The stage on the Sacramento River at Tisdale Weir rose to slightly above the spill elevation, but no significant flow to the bypass system occurred. As shown in Figure 12, this marked the second and last semblance of winter flow for the Sacramento River this year; the San Joaquin River, also shown in Figure 12, experienced no significant rise during the entire water year. By the end of May, the water year had been established as the driest of record at Red Bluff; the second driest near

Folsom Dam, Fresno, and Bakersfield: and the third driest near Shasta Dam. Figure 1A (Appendix A) provides a profile of this year's major crest on the Sacramento River against a background of selected historical crest profiles.

June and August brought severe thunderstorms to the lower San Joaquin Valley. On June 7, Bakersfield Airport recorded over 1 inch of rain in 45 minutes, while other areas reported up to 3 to 5 inches in an hour. Flash flooding in the Bakersfield area caused two deaths and an estimated \$175,000 in damage to highways, buildings, and automobiles. Prior to that unseasonable storm, Bakersfield Airport had received only 1.75 inches of rain during the entire winter season.

However, the only major flood event of the year for the Central Valley Area resulted from neither seasonable nor unseasonable rainfall or runoff. This event was a levee failure in the Sacramento-San Joaquin Delta in the summer of a dry year: the Brancan-Andrus Islands flood of June 1972.

The Sacramento-San Joaquin Delta

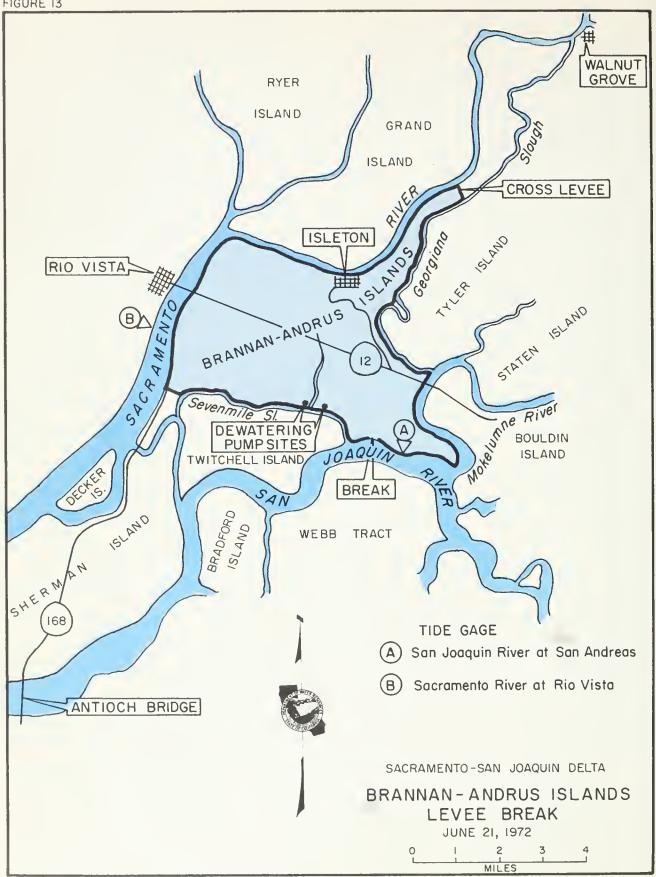
Located at the confluence of the Sacramento and San Joaquin Rivers, the Delta encompasses over 70,000 acres of agricultural land and a maze of interlinked waterways. Although the area is generally referred to as a single unit, it is actually composed of over 60 separate islands and tracts, each an entity with its own privately-owned levees and drainage systems.

More than 1,000 miles of levees protect these tracts of farmland from high tides and winter runoff from the Central Valley. These levees have been built progressively higher since

the earliest reclamation of the tule swamps. The present levees range from 5 to 25 feet above ground surface but provide minimal freeboard for winter river stages.

The present land surface elevation of the major portion of the Delta lies from 5 feet above to 20 feet below mean sea level and is subsiding at the rate of approximately 1 foot every 4 years. Therefore, the hydrostatic pressures that these levees must withstand are constantly increasing. Moreover, the organic soils of the Delta provide poor material for levee construction.

On June 21, 1972, Brannan Andrus Islands flooded when a levee on the



south side of the islands was breached by the San Joaquin River. The levee failure, which was discovered by sheriff's deputies at 1:05 a.m., took place a few hundred yards from the Spindrift Marina. The break was first reported to be about 100 feet wide. By 8:00 a.m. it had been widened to about 300 feet. Within the first few hours, the rush of water flooded a recreational trailer park on the land side of the marina and swept docks, boat houses, and boats (some of them occupied) from the marina into the interior of the islands. The flood water spread rapidly toward other recreational parks near the levee and toward the town of Isleton, lying about 4 miles north on the opposite side of the islands. By 9:00 a.m. the water had reached the outlying portions of the town.

Construction of a bow levee to protect Isleton was under way by 10:00 a.m., June 21, and the work continued until it was halted by rising tides and waves generated by 30- to 45-mph winds. At 9:45 p.m. on June 22, the bow levee was breached and the town's low-lying residential area, school, and sewage treatment plant were flooded.

On June 23, the third day of the flood, the water level in the islands had equalized with that in the San Joaquin River and the basin was full. In the lower portions of the islands, the flood water was more than 20 feet deep. Within slightly more than two days, more than 150,000 acre-feet of water had poured through the break from the river and gouged an 80-foot-deep hole where the levee had stood.

On July 1 work was started to repair the break with hydraulic dredgers and rock barges; the closure was completed on July 24 and dewatering commenced. Auxiliary drainage pumps with a combined capacity of approximately 1,000 cubic feet per second were installed to perform this work. By mid-September

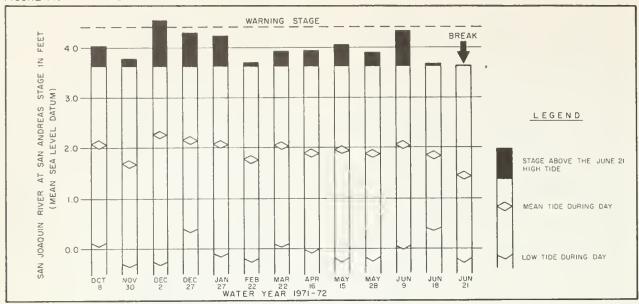
the water level in the islands had been lowered about 6 feet; by mid-November dewatering was substantially completed.

During the inundation, in which some 3,000 persons were reportedly made homeless, warnings given bysheriff's deputies and rescue work by U. S. Coast Guard boats and military helicopters prevented any loss of life. Property losses included damage to or destruction of about 350 homes, 125 mobile homes, 16 marinas, and 12,000 acres of crops. Suits totaling over \$50 million were subsequently filed against local, state, and federal agencies on behalf of the flood victims. On June 27, the President declared the flood area a "Disaster Area", making federal funds available for local relief and recovery efforts.

Extensive damage was also caused by wavewash to the landward slopes of the levees along Seven-Mile and Georgiana Sloughs, and along the San Joaquin and Mokelumne Rivers. A flood emergency declaration was prepared by the Director of the Department of Water Resources and was signed by the Governor on the first day of the flood. Under this authorization, the Department conducted extensive flood fight activities along the Georgiana Slough levee and provided technical assistance in other areas. State, federal, and local agencies expended over $2\frac{1}{2}$ million on levee protection and repair work.

In addition to the damage caused within Brannan-Andrus Islands, the diversion of San Joaquin River flow through the break also disrupted the hydraulic barrier to saline water intrusion from San Francisco Bay. After the islands filled, the hydraulic barrier was restored. Releases from Shasta and Oroville Dams to the north were increased to help flush out the saline water that had penetrated the Delta waterways.

Figure 14 illustrates selected tide stages at the tide gage "San Joaquin River at San Andreas" shown on Fig. 13.



The Brannan-Andrus Islands levee break took place at a time of low river flows and moderate tides. Figure 14 compares the moderate tide recorded on the day of the break to higher tides recorded during normal periods of high water. Days shown typify ranges of these higher tides.





Brannan-Andrus Islands Flood

View across break in levee along San Joaquin River, looking toward Spindrift Marina, June 22, 1972. (DWR Photo No. 4245-34) Rock reinforcement being placed along the levee break.

(DWR Photo No. 4245-36)



(DWR Photo No. 4245-38)

Brannan-Andrus Islands flood: Above, construction of bow levee at Isleton, June 22, 1972. Below, wave-wash protection being placed along bow levee at Isleton sewage treatment plant.



(DWR Photo No. 4245-11)



Remains of a flood-devastated home on Tyler Island Road three months after the Brannan-Andrus Islands levee break.

(Sacramento Union staff photo by Jerry Rainbolt)



(DWR Photo No. 4246-9)

Brannan-Andrus Islands flood: Above, flooded school and homes in Islaton following breaching of bow levee. Below, flooded homes north of Islaton on Tyler Island Road, June 23, 1972.



(DWR Photo No. 4246-7)



(DWR Photo No. 4246-28)

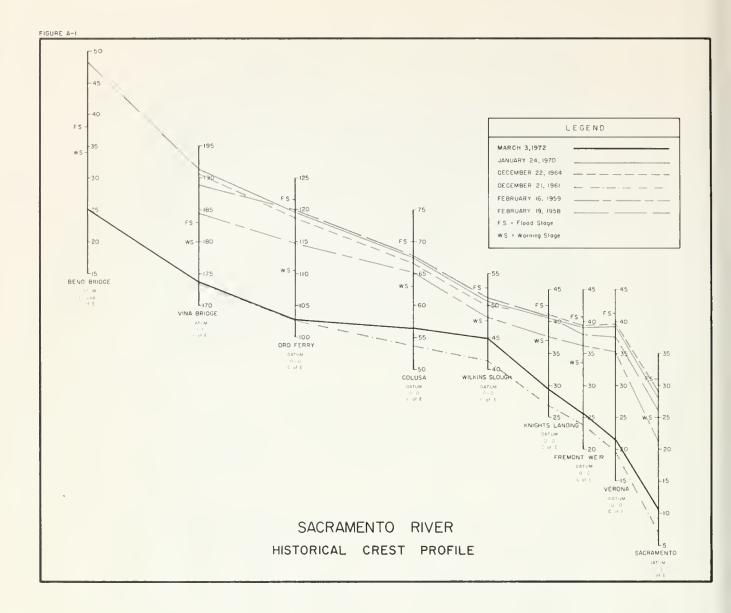
Brannan-Andrus Islands, June 23, 1972: Above, wave-wash erosion along landward slope of levee along Mokelumne River. Below, houseboat beached on Highway 12 embankment near Mokelumne River, after being swept through levee break.



(DWR Photo No. 4246-23)

APPENDIX A

Sacramento River Crest and Weir Overflow Records



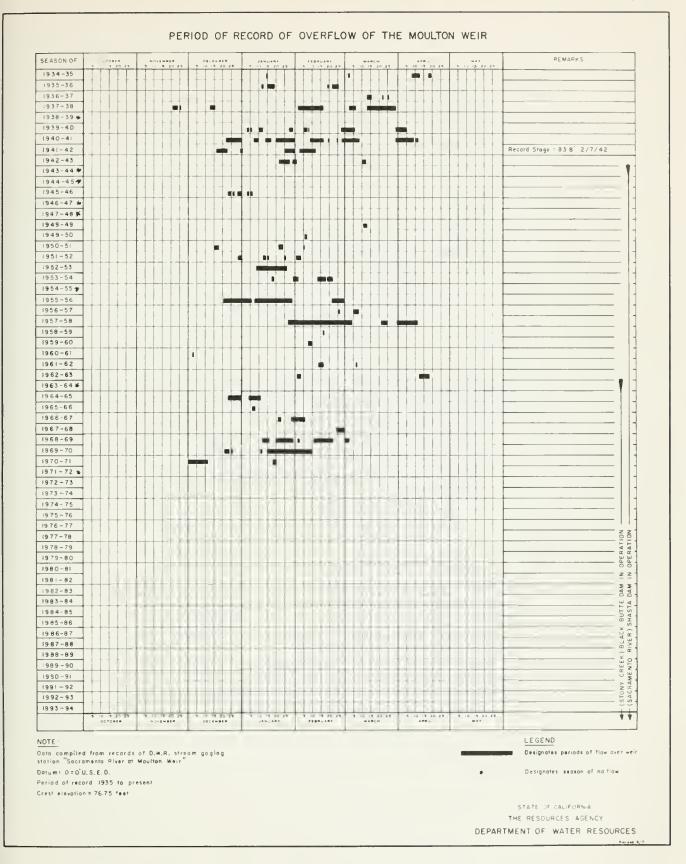
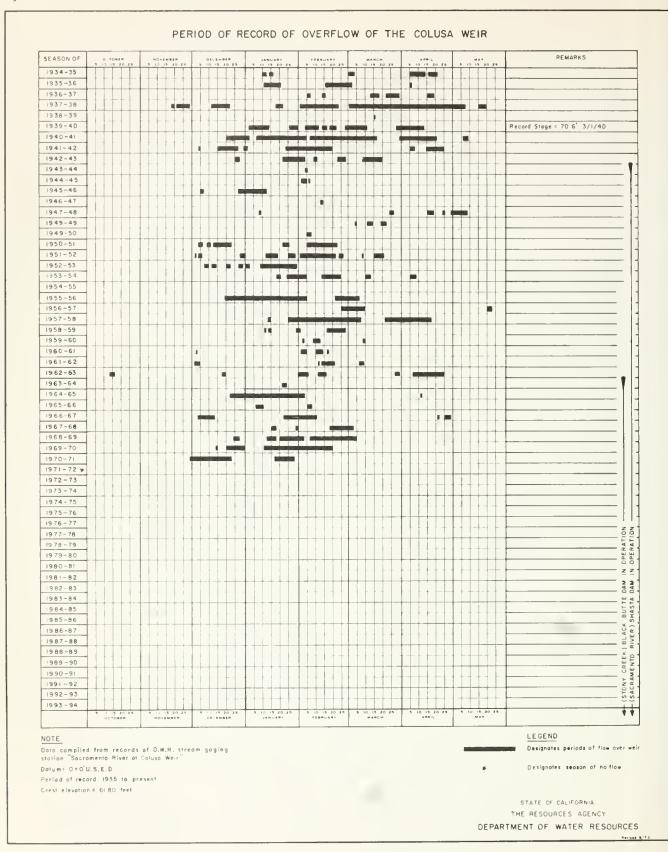


Figure A-3



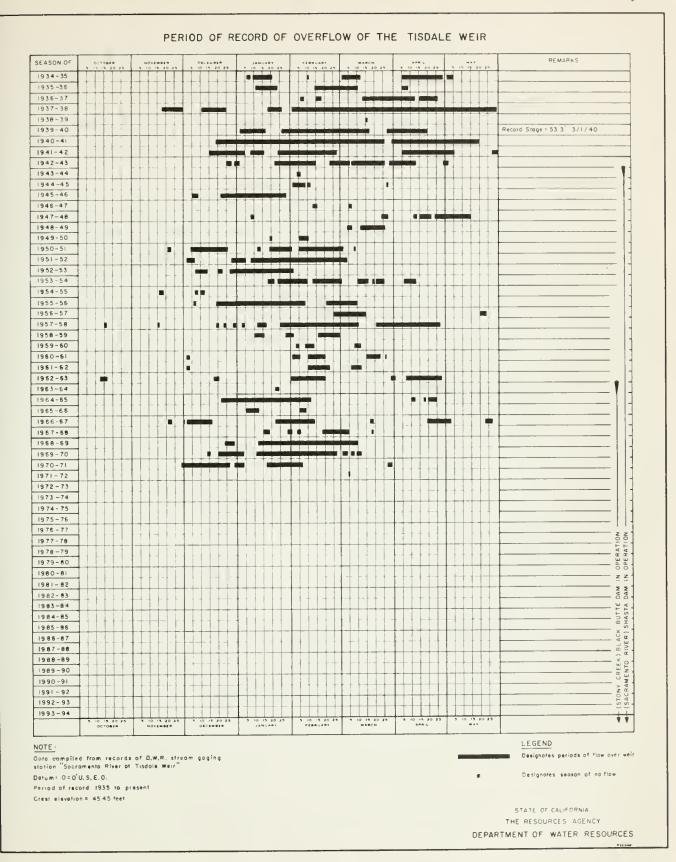
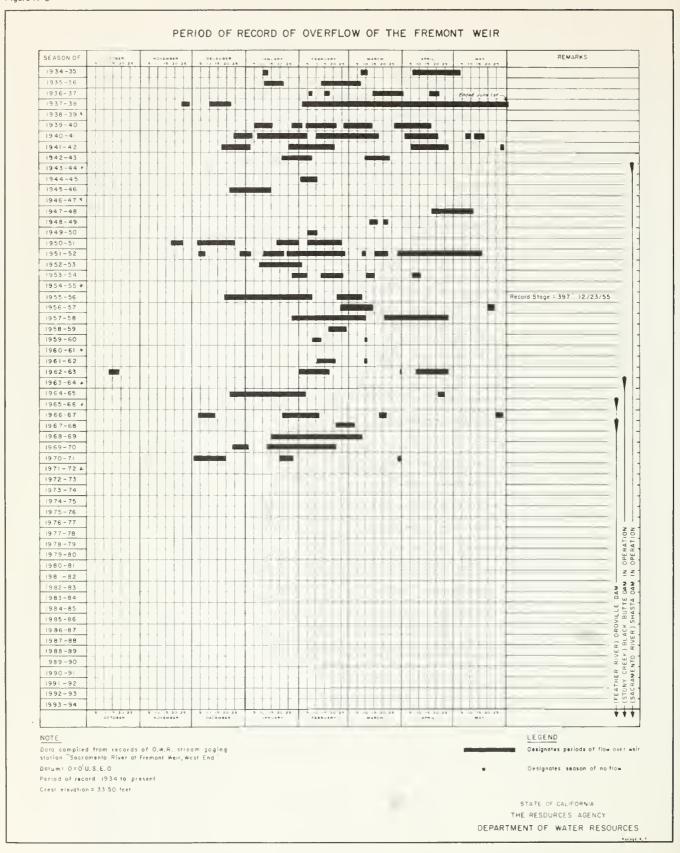


Figure A-5



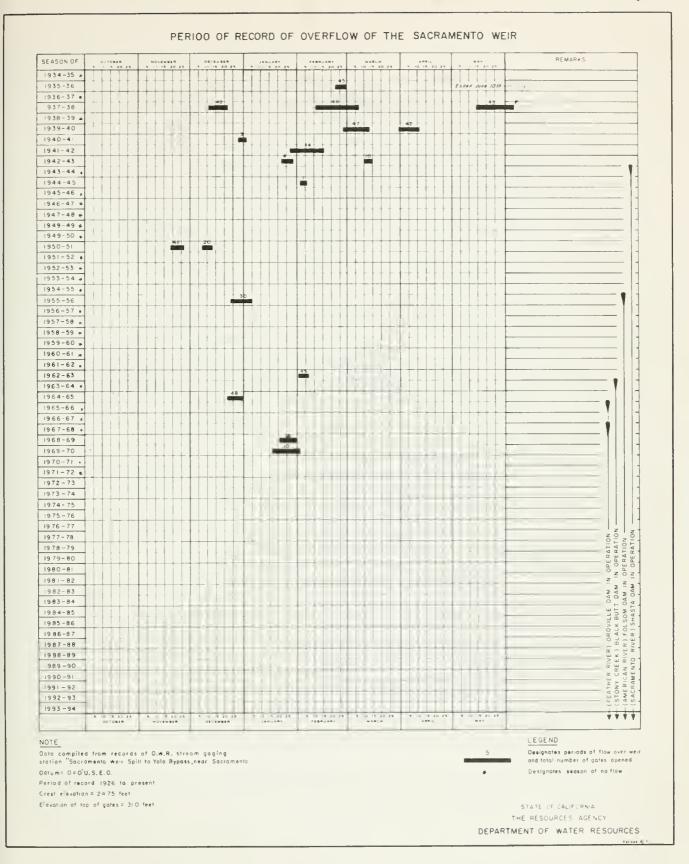
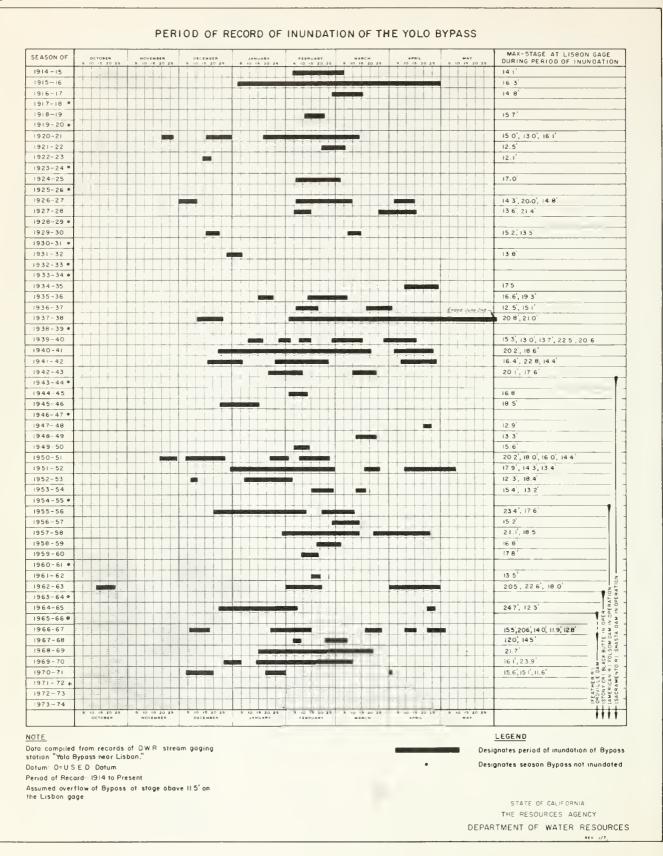


Figure A-7



APPENDIX B

Peak Flows and Stages at Selected Streams and Stations in California

INTRODUCTION

Appendix B presents data for selected stations on representative streams of the major hydrographic areas of California (Figure 1). The data are obtained from USGS Surface Water Records, Department of Water Resources Bulletin No. 130, and U. S. Department of Commerce, NOAA, National Weather Service, Daily River Stage publications. Current water year data are preliminary and are subject to revision.

Stations are listed in a downstream direction along the main stream and tributaries. Stations on tributaries are listed between main stream stations in the order in which the tributaries enter the main stream.

LEGEND

- USGS United States Geological Survey
- USBR United States Bureau of Reclamation
- NOAA National Weather Service (National Oceanic and Atmospheric Admin.)
- USCE United States Corps of Engineers
- DWR Department of Water Resources
- PG+E Pacific Gas and Electric Company
 - A From flood marks
 - B Discharge over weir or spillway
 - C Site or datum then in use
 - D Discharge not determined, affected by backwater or tide
 - E Estimated
 - F From DWR telemetering log
 - G Preliminary
 - H Includes flow through power plant
 - I Due to failure of partially completed dam
 - J Gage height revised
 - K Flow through power plant not included
 - L Discharge at latitude of gaging station site
 - M Prior to construction of upstream dam
 - N Includes flow through fish hatchery but not upstream diversion to Thermalito Afterbay
 - P Observed
 - Q Estimated peak inflow to partially completed Oroville Reservoir
 - R Regulated stage and flow
 - S Revised to current datum
 - T Datum of gage is 0=0 USED
 - U Crest stage partial recorder
- N/A Not available at report time
 - * Peak of record established current year

	. DRAINAGE	. PER100	. SOURCE	. PR	EVIUUS MAXIM UF RECORD	IUM	•	1971-197 WATER YI	72 EAR
STREAM AND STATION	AREA IN SQ MILES	. OF . RECORU	. OF . RECORO	. OATE		DISCHARGE IN CFS	. DATE .		DISCHARGE IN EFS
				H COASTAL					
SMITH	RIVER BASI	N							
SMITH RIVER NEAR CRESCENT CITY			USGS	12-22-64	48.5	228,000	1-22-72	43.37	182,000
	TH RIVER BA								
SHASTA RIVER		1933-41 1944-	USGS	12-22-64	12.9 13.∋(A)		3 -3-72	6.92	2,570
SCUTT RIVER MEAR FORT JONES	653	1941-	USGS	12-22-64	25.3(AC)	54,500	3 -3-72	17.14	14,800
NEAR SEIAO VALLEY	6980	1912-25 1951-	USGS	12-23-64	33.8(A)	165,000	3 -3-72	20.26	55,600
SALMON RIVER HT SOMESBAR	751	1911-15 1927-	USGS	12-22-64	46.6(A)	133,000	3 -2-72	24.84	72,800
KLAMATH RIVER AT URLEANS	8475	1947-	USGS	12-22-64	76.5(AE)	307,000	3 -3-72	32.82	209,000
TRINITY RIVER ABOVE COFF CREEK NEAR TRINITY CENT		1957-	u s GS	12-22-64 12-22-64	12.3 13.4(A)	20,800	1-22-72	6.65	3,920
TRINITY RIVER AT LEWISTON	728	1911-	U\$GS	12-22-55	27.3(AC)	71,600	11-12-71	3.45	270
NURTH FORK TRINITY RIVER AT HELENA		1311-13 1957-	USGS-DNK	12-22-64	27.9(A)	35,800	3 -2-72	19.45	12,900
TRINITY RIVER NEAR BURNT RANCH	1+39	1931-40 1956 -	U\$GS	12-22-55	43.2[A]	172,000	3 -3-72	17.14	25,400
HAYFORK CREEK LAR HYAMPOM	378	1953-	USGS	12-22-64	19.1	28,800	3 -3-72	10.66	6,660
PILLON EREEK VEAR MILLEM CREEK	41	1959-	USGS	12-22-64	20.6(4)	17,000	3 -2-72	10.3	7,600
TRINITY RIVER AT HOUPA		1911-14 1916-18 1931-	USGS	12-22-64	49.3(AC)	231,000	3 -3-72	37.53	97,700
KLAMATH KIVER GEAR KLAMATH		1910-26 1950-	USGS	12-23-64	55.3(A)	557,000	3 -3-72	37.89	360,000
RECOU	OD CRECK BA	1SIN							
REDWOOD CREEK		1911-13 1953-	USGS	12-22-64	24.0{A}	50,500	3 -3-72	23.67	49,700
LITTL	L RIVER BAS	5 I w							
LITTLE RIVER LIT CHANNELL	Eq. 14	1955-	OSGS	11-24-70 1-17-53		8.830	1-22-72	14.08	12,700•
MAD ≺	IVLK BASIN								
MAD RIVER LEAR FOREST RLEN	143	1953-	USGS	12-22-55	24.5[A]	34+200	2-29-72	6.73	5,570
MAL RIVER EAR ARCATA	485	1910-13	USGS	12-22-55	29∙⊎	77,800	3 -2-72	23.44	53,400
EEL K	IVEK DASIN								
ELL RIVER BELLA SCOTT D.	AM 290	1922-	OSGS	12-22-04	24.clA1	56,300	2-29-72	10.51	4,190
EEL RIVER AT VAN ARSUAL HAM WEAR PUTTER VALLEY		1909-	USGS	12-22-64	33.9141	04,100	2-24-72	12.51	4,540
LUTLET COREP	101	1956-	USGS	12-22-64	30.0(A)	77,900	1-22-72	13.38	12,500
BLACK BUTTE RIVER	162	1951-	U\$G\$	12-22-64 12-11-37	26.4[A] 36.2[A]C]	29.000	1-22-72	19.57	6,980

	. DRAINAGE	PERIOD	SOURCE	• PK	EVIDUS MAXIM	1UM		1971-197 mATEK YE	2 Ak
STREAM AND STATION	. SQ MILLS	. RLCURU	. REEURU	. DATE	. STAGE . . IN FEET .	DISCHARGE	. UATE .	STAGE .	OISCHARGE
			HURT	H CUASTAL	AREA (CUNTIA	IUED)			
	IVER BASIN								
VERTH FURK EEL RIVER VEAR MINA	243	1953-	USGS	12-22-64	33.0(A)	133,000	1-22-72	15.57	15,300
FEL RIVER AT FURT SEWARD	2107	1955-	USGS	12-22-64	67.2(AC)	561,000	1-23-72	28.55	60,800
TERMILE CREEK WEAR EAYTONVILLE	50	1957-	USGS	12-22-55	22.9(A)	16,300	1-22-72	11.75	4,680
SUUTH FÜRK EEL RIVER JEAR MIRANDA	537	1939-	USGS	12-22-64	46.0(A)	199,000	1-23-72	44.26	66,500
CALL CREEK FAR WEDTT	20	1960-	USGS	12-22-64	20.6(AÇ)	6,520	1-22-72		2,600(1)
EFL RIVER AT SCOTIA	3113	1910-	uscs	12-23-64	72.0(A)	7.52,000	1-23-72	31.62	132,000
VAL OUZEN RIVER NEAR BRIDGEVILLE	222	1950-	usgs	12-22-64	24.0[4]	48,700	1-29-72	16.00	21,200
MAITU	EE RIVER BA	SIN							
MAITULE RIVER JEAR PETRULIA	240	1911-13 1915-	USGS	12-22-55	29.6(0)	90,400	1-22-72	19.62	42,100
NUYU	RIVER BASIN	ı							
NUYD RIVER WEAR FURT BRAGG	100	1951-	USGS	12-22-64	20.3	24,000	1-23-72	12.95	2,770
NAVAR	RU RIVER BA	SIN							
NAVARRO RIVER LAR NAVARRU	303	1950-	USGS	12-22-55	40.6(0)	64,500	1-23-72	7.86	2,700
GUALA	LA RIVER 8A	SIN							
SUUTH FÜRK GUALALA RIVE NEAR ANNAPULIS		1950-71	uses	12-22-55	24.6[0]	55,000	STATION	DISCUNTINU	ĒΟ
RUSS1	AN RIVER BA	SIN							
RUSSIAN RIVER THAP UNIAH		1911-13 1952-	USGS	12-21-55	21.0	18,900	1-22-72	14.82	3,190
EAST FURK RUSSIAN RIVER FEAR CALPELLA) 2	1941-	USGS	12-22-64	20.2	18,700	1-22-72	12.08	3,010
RUSSIAN RIVEK LEAR HOPLAND	362	1939-	USGS	12-22-55 1237	27.0 30.0(A)	45 • 000 	1-23-72	12.17	6,760
RUSSIAN RIVER HEAR CLOVERDALE	503	1951-	USGS	12-22-64	31.6(0)	55,200	1-23-72	10.29	6,140
BIS SULPHUR CREEK FEAR CLOVERDALL	82	1957-	USGS	12-22-55	15.8(A)	20,000	1-23-72	5.07	810
RUSSIAN RIVER HEAR HEALDSBURG	793	1939-	USGS	12-23-64 1237	27.0 30.8(A)	71,300	1-23-72	6.77	6,590
DRY CREEK NEAR CLOVERUALE	88	1941-	USGS	12-22-64	18.1	18,100	12-27-71	5.43	1,630
DKY CREEK MEAR GEYSERVILLE	162	1959-	USGS	1-31-63	17.5	32,400	12-27-71	6.43	3,460
RUSSIAN RIVER NEAR JUERNEVILLE (SUMMERHOM	E) 1340	1939-	USGS	12-23-64 12-23-55	49.6[A] 49.7[A]	93,400 	12-27-71	14.71	a,990

	DRAINAGE	. PEK100	SOURCE	• PK	EVIUUS MAKIM UF RECURU	UM		1471-1472 NATER YEA	LR.
STREAM AND STATION	. 20 MILES	. RECURD	. REEURU	· UAIE	. STAGE IN FEET .	IN CFS	· UAIE ·	SINUT .	In CFS
				FRANCISCO					
WALK	ER CRLEK 6A	5 I N							
MALKER CREEK	3.7	1959=	115.6.5	1- 5-66	22.2	5.420	2 -5-7/	13.03	1.430
	E MAOERA ER			. , ,	to 6. V to	7 1 1 2			.,
CURTE MADERA CREEK		1051		10 22 5	.7.4	- 430	10 10 71	90	915
41 R055	I B ATO CREEK BA		02.02	12-22-00	17.5	3.620	12-12-71	8.90	713
VUVATU CREEK									
	18		USGS	1-14-70	11.0	2.000	12-26-71	4.55	25.3
SUNUMA CREEK	IMA CREEK BA	5 [N							
AT AGUA CALIENTE	5 8	1935-	USGS	12-22-55	17.1(0)	8,880	12-27-71	5.02	620
	RIVER BASI								
NAPA RIVER NEAR ST. HELENA		1929-32 1939-	USG5	12-22-55	10+2	12,600	12-27-71	5.u3	1,280
NAPA RIVER NLAR NAPA		1929-32 1959-	USGS	1-31-63	27.6	16,900	12-27-71	8.06	1,430
RLEWOUD CREEK									80
LEAR NAPA	LO IECU CREEN B	1958-	USGS	1- 5-65	10.4	1.450	1-27-72	3.64	80
SAN RAMON CREEK	IZUU EREER O	A3114							
AI SAN RAMON		1952-	USGS	10-13-62	17.0	. + 600	2 -5-72	2.37	20
	LORENZU CRE	1939-40							
SAN LURENZO CHEEK AT HAYWARD		1946-	U5G\$		19.7(A) 23.8(A)		2 -5-12	>.53	501
ALAM	LEUA CKEEK B	ASIN							
ARKOYO MOCHO NEAR PLEASANIUN	141	1962=	USGS	2- 1-63	8-60(5)	1.760	12-75-71	4.02	.70
ARROYO VALLE	141	1912-30	0303	2 . 03	0,00,00	17.00		, , ,	
NEAR LIVERMORE	147	1957-	USG5	12-23-55	13.9(4)	16,200	7-11-72	3.09	901
ARROYO VALLE AT PLEASANTUH	171	1957-	USGS	4- 3-58	25.4	11,300	7-25-72	8.58	.201
ALAMEDA CREEK	633	1891-	USGS	12-23-55	14.9	29,000	12-25-71	4.11	3301
PATTERSON CREEK								7 17	1504
AT UNION CITY ALAMEDA CREEK		1958-	U\$G5	2- 1-63	20.4(A)	10,500	12-26-71	7.17	1500
AT UNION CITY	653	1958-	USGS	2- 1-63	19.3(A)	1,770	12 -2-71	10.28	201
	OTE CHEEK 8A								
DUYOTE CREEK NEAR MADRONE	196	1902-12 1916-	usgs	3- 7-11		25,000	4-12-72	2 - 5 3	100(
UPPER PENITENCIA CREEK AT SAN JUSE	22	1961-	USGS	1-21-67	6.2	15,000	12-25-71	3.47	10
	DALUPE RIVER								
ALAMITOS CREEK	32	1958-	USGS	4- 2-58	J. 7	4,300	1-27-72	1.96	601
NEAR NEW ALMADEN	32	1929-44	0303	7- 2-38		,,,,,,,			
AT LUS GATUS	39	1953-71	USGS	2-2740	14.7(0)	7,110	STATIUN	DISCONTINU	E 0
GUADALUPE RIVER AT SAN JOSE	144	1929-	USGS	4- 2-58	16.6	9,150	12-21-71	4+10	1,4901
SARATOGA CREEK AT SARATUGA	9	1933-	USGS	12-22-55	6.4(0)	2,730	12-27-71	3.41	130
	ADERO CREEK								
MATADERO CREEK		1073	115.00	12 22 52	0	0.54	12-21 31	2 116	170
AT PALO ALTO	7	1952-	USGS	12-22-55	9.6	854	12-21-71	2.04	110

	. DRAINAGE	. PERIOU	. SOURCE	. PK 8	VIUUS MAXIM UF RECOKD	UM	•	1971-197 nATEK YE	2 AR
STREAM AND STATION	. SO MILES	. RECORO	. RECORU	. DATE	STAGE .	DISCHARGE	. DATE .	STAGE .	OISCHARGE
					BAY AREA (CU				
	FRANCISQUITO								
SAN FRANCISQUITO CREEK	EK BASIN	1930-41		12 22 55	15.	5.510			
AT STANFORD UNIVERSITY	Y 38	1950-		12-22-55 IRAL COASTAI		5,560	12-24-71	1.15	40
REDW!	DOO CREEK BA	SIN	0.00						
REDWOOD CREEK AT REOWOOD CITY	2	1959-	USGS	1-31-63	9.4	544	1-27-72	2.98	50
PESC	ADERU CREEK	bAS1N							
PESCAUERO CREEK NEAR PESCADERO	4.5	1951=	LISES	12-23-55	21 3	9.420	12-27-71	3 50	210
	LORENZO RIVE		0303			77120		3.37	2.0
SAN LORENZO RIVER Al BIG TREES	111	1936=	uses	12-23-55	22.6	30.400	12-27-71	4.75	1.060
	EL CREEK BAS		0000			30,100			.,,,,,,
SUWUEL CREEK AT SOQUEL	40	1951=	uses	12-23-55	22 3	15.400	12-41-71	4 44	580
	RO RIVER BAS		0303	12 23 33	2243	13,000	12-21-11	7.57	300
BUDFISH CREEK NEAR GILRDY	7	1959-	USGS	1-31-63	8.3	1.240	2 -5-72	3.64	60
MES PINOS CREEK MEAR TRES PINOS	206	1939-	USCS	4-41	7.8	ც, 060	12-25-71	4.59	180
SAN BENITO RIVER MEAR MOLLISTER	586	1949-	USGS	4- 3-58	10.3	1.,600	1-15-72	3.45	10
PALKU KIVEP AT CHITTENDE!	1186	1939-	USGS	12~24-55 4- 3- 58		24,000	3-16-72	4.23	180
CURRALITOS CRÉEK NEAR CURRALITUS	11	1957-	USGS	4- 2-58	7.6	1,970	2 -5-72		90(:
CURRALITOS CREEK AT FREEDOM	28	1956-	USGS	12-22-55	15.6(A)	3,620	2 -5-72	3.60	.5C
SALI	NAS RIVER BA	SIN							
SALINAS RIVER NEAR PUZU	70	1942-	USGS	1-25-09 1-25-69		18,600	12-27-71	12.13	۵30
SALINAS RIVEK ABOVE PIL CREEK NEAR SANTA MARGI		1942-	uSüS	1-25-69	14.9	16,600	6-30-72	2.37	360
JACK CREEK NEAR TEMPLETON	25	1949-	USGS	2-24-09	11.3	8,160	12-27-71	5.05	640
ESTRELLA RIVER NEAR ESTRELLA	922	1954-	USGS	2-24-69	10.4(4)	32,500	1-47-72	۷. ع ا	10
NACIMIENTO RIVER NEAR BRYSON	1 40	1955-	uscs	1-25-69	24.0	39,100	12-25-71	16.04	7,690
SALINAS RIVER NEAR BRADLEY	2535	1948-	USG5	2-24-69	20.3(4)	117,000	4 -2-72	5.93	580
AKRUYU SECO NEAR SOLEDAD	244	1901-	USGS	4- 3-58	16.4	26,300	12-25-71	8.59	4,540
SALINAS RIVER NEAR SPRECKELS	4156	1900-01 1929-	usgs	2-26-09	20.5(0)		12-27-71	7.32	1,45.)
CARM	EL KIVER BAS	1.4		1-16-52	26.9(A,C1				
CYKWEE KIAFK THE KIAFK			USGS	4- 2-58 12-23-55			12-27-71	w. 35	390
816	SUK KIVEK BA	SIN				.,,,,			
BIG SUR RIVER	47	1950-	USGS	8د - 2 - 4	11.6	5,680	12-25-71	٥٠٠٥	1,400

CTDEAM AND STATION	ORAINAGE	PERIUD	. SUURCE	• PRE	VIUUS MAXIM UF RECORD	BUM	. 1971-1972 . WATER YEAR			
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				RAL CDASTAL						
ARRDYU	DE LA CR	UZ BASIN								
RKOYO DE LA CRUZ NEAR SAN SIMEON	41	1950-	USGS	12- 6-66	15.3	35,200	12+26=71	7.93	4 . 620	
	ROSA CREE							.,,,,	.,020	
ANTA ROSA CREEK NEAR CAMBRIA	1.3	1957-	115.0.5	1-25-60	12 0	3 350	12-26-71	6 04	270	
NEAR CAMOREA	13	1931-	0303	1-25-69 1255	15.2(A)		12-20-11	4.70	270	
	MARIA RIV	ER BASIN								
NEAR GAREY	471	1940-	uses	1-25-69	13.0	24,500	12-27-71	5.55	750	
ANTA MARIA RIVER AT GUADALUPE	1741	1940-	USGS	1-16-52	8.2(0)	32,800	12-25-71	5.25	1918	
SANTA	YNEZ RIVE	R BASIN								
SANTA YNEZ RIVER DELDW GIBRALTAR DAM NEAR SANTA BARBARA	216	1920-	υ s gs	1-25-69	25.8	54,200	12-27-71	8.09	50	
ANTA CRUZ CREEK NEAR SANTA YNEZ	74	1941-	บรูดร	2-24-69	14.5(A)	7.050	12-25-71	4.90	440	
	SE CREEK					,,,,,,,		,,,,		
AN JOSE CREEK NEAR GULETA	6	1941-	USGS	1-25-69		2,000	12-27-71	5.47	430	
ATASCA	DERD CREE	K BASIN								
TASCADERO CREEK NLAR GULETA	19	1941-	บริติร	1-25-69	13-0	5.230	12-27-71	10.47	2,470	
		EK BASIN				3,630		101.	27410	
ARPINTERIA CREEK NEAR CARPINTERIA	12	1941=	HCCC	1-25-69	15 9(46)	4,560	12-27-71	14 =	8,080•	
MEAN CANTESTERS	13	1941-		TH COASTAL A	,	4,300 (12-21-11		0,000	
VENTUR	A CREEK B	NIZA								
AFILIJA CREEK AT MATILIJA HDT SPRINGS	55	1927-	USGS	1-25-69	16.5	20,000	12-29-71	4.17	58 J	
ENTURA RIVER NEAR MEINERS UAKS	76	1959-	USGS	1-25-69		28,000(E)	12-25-71	5.85	210	
GYDTE CREEK HEAR OAK VIEN	13	1958-	USGS	1-25-69	12 . 0	b _* 000	12-27-71	9.41	1.080	
ENTURA RIVER NEAR VENTURA	168	1911-14 1929-	USGS	1-25-69	24.3(A)	56,000	12-27-71	8.95	2.080	
SANTA	CLARA RIV	ER BASIN								
AN CLARA RIVER AT LOS ANGELES-VENTURA CD. LIN	E 644	1952-	USGS	1-25-69	19.0	68,800	12-27-71	6×46	>80	
ABUVE LAKE PIRU	372	1955-	USGS	2-25-69	18.6(A)	31,200	124-71	6.49	1,190	
LSPE CREEK GEAR FILLMORE	251	1911-13 1927-	USGS	1-25-69 2-25-69	20.8 25.u(A)	60,000	12-24-71	15.83	3,660	
A ITA PAULA CREEK MEAR SANTA PAULA	40	1927-	USGS	2-25-69	15.2(A)	21,000	12-25-71	6.04	940	
	CREEK BA									
ALIBU CREEK AT CRATER C. REAR CALABASAS	lús	1931-	USGS	1-25-69	21.4	33,800	12-27-71	7.3)	2,260	
	A CREEK B	ASIN								
ALLDNA CREEK NEAR CULVER LITY	90	1928-	USGS	11-21-67	14.9	341500	12-27-71	7.57	9. 780	

INCITATE U. A MASHI.		E F	SUURCE		VIOUS MAXIM OF RECORD			ALER Y	EAR
	. SW MILES	. KECORU	. RECERU	. DATE .	SIAGE .	DISCHARGE	. OHIL .		• UISEHARGE • IN CES
			Suut	H CUASTAL A	REA (CONTIN	DEU1			
LUS A	NGÉLES RIVE	ER BASIN							
LCS ANGELES HIVER AT SEPULVEUA DAM	153	1929-	uscs	1-25-69	11.4	13.800	12-27-71	7.52	7,580
LUS ANGELES RIVER	514	1+29-	USUS	3- 2-38		67,000	12-24-71	> 84	13,700
RIG HUNDO .FAR DUWNEY	1+3	1928-	USGS	1-25-69	10.2	46+700	12-24-71	6.41	11.400
SANTA	AHA RIVER	BASIN							
SANTA ANA KIVEK NEAR MENTONE	204	1896-	usus	3- 2-26	14.3(E)	52+300	12-24-7L	6.20	1,480
SAS GABRIEL KIVER BLLOW SANTA FE DAM BEAR BALOWIN PARK	236	1942-	usus	1-26-69	22.2	301900	12-24-71	10.33	10
S.INTA ANA RIVER AT 'E' NLAR SAN BERJAROINU		1939-54 1966-	USGS	2-25-69	16.5	28,000	12-24-71	0.41	3,940
MILL CREEN LEAR YUCAIPA		1919-38 1947-	USGS	1-25-67	16.8(A)	35,400	12-24-71	8.13	24G
LYTLE CREEK WEAR FUNTANA	46	1 +18-	USGS	1-25-69	15.0(A)	35,900	12-24-71	6.45	1.360
CAJUN CREEK LEAR KEENBROOK	41	1919-	USGS	3- 2-38	25.0(6)	14,500			WA
SANTA ANA RIVER AT RIVE HARROWS NEAR ARLINGTON		1927-	USGS	3- 2-38		100,000	12-24-71	10.41	5,200
SAN JAEINIO RIVER REAR SAN JACINIO	141	1920-	U \$ GS	2-16-27		45,000	12-25-71	10.99	57 0
SENTIAGO CREEM AT MUDJESKA	13	1961-	USGS	2~25~69	6.2	6,520	12-25-71	4.11	200
SANTIAGU EREEP AI SANTA ANA	95	1928-	uSGS	2-25-69 1-16-52	9.1(L)	6,600	12-27-71	4.4)	210
SAN JI	DAN CREEK D	ASIN							
SAH JUAH CREEK HEAR SAN JUAH CAPISTKA	NO 106	1926-	USGS	2-25-69	5.6(AC)	22+400	12-27-71	4.00	110
	MAKUAKITA K BASIN								
SANTA MARGARITA RIVER NEAR TEMPCULM	588	1923-	uSGS	2-16-27	14.0[0]	25,000	12-24-71	3.14	370
SANTA MARGARITA RIVER AT YSLUORA	739	1923-	u\$G5	2-16-27	18.0(0)	33,600			HU FLOW
SAN L	UIS HEY HIV	ER BASIN							
SAN LUIS REY RIVER AT MONSERATE NARROWS NR P.	ALA 373	1935-41 1946-	USGS	2- 7-37	8.7(E)				NO FLOW
SAN LUIS REY RIVER MEAR BONSALL		1916-18 1929-	USGS	3- 3-38	16.0	16,100	12-25-71	7.77	C 8
SAN U	IEGUITU RIV	EK BASIN							
SANTA YSABEL CREEK NEAR RAMONA	112	1912-23 1943-	USGS	1-27-16	14.0(0)	28,400	12-28-71	2.27	5
SANTA YSABEL CREEK NEAR SAN PASQUAL	128		USGS	3-24-06	6.3[0]	8,000			NÐ PEAK (R
	1EGU RIVER	BASIN							
SAN DIEGO RIVER NEAR SANTEE	377	1912-	uses	1-27-16	25.1(0)	70,200	12-28-71	3.75	210
SWEETI	MATER RIVER	BASIN							
SWEETWATER RIVER "VEAR OESCANSU		1905-27 1956-	USGS	2-16-27	13.2(AÇ1	11,200	12-27-71	3.60	10
AULIT	NA KIVER 8A	SIN							
TIJUANA RIVER NLAR OULZURA	481	1936-	USGS	2- 7-37	d.5	4,700	6 -6-72	3.23	70

	. ORAINAGE	. PERIUU	. SOURCE	• PR	EVIOUS MAXIM UF RECORO	UM	•	1971-1 WATER	
STREAM AND STATION	. AREA IN . SQ MILES	. UF . RECURU	. RECORD	DATE	. STAGE .	DISCHARGE	. OATE .	STAGE	• OISCHARGE • IN CFS
•••••				RAL VALLEY	AREA				
SACKA	MENTO KIVEK	BASIN							
SACRAMENTO KIVER AT DELTA	425	<u> 1</u> 944	usGS	12-22-64	20.1	38,800	2-28-72	10.16	8,260
PIT RIVER NEAR BIEBER		1904-31 1951-	usgs	3-19-07	16.7	33,800	3 -1-72	9.78	8,790
PIT RIVER BELUM PIT ND.4 OAM	4647	1922-	USGS	1-25-70	18.1	32,5G0(E)	3 -3-72	10.70	8,120
MCCLDUD RIVER ABOVE SHASTA LAKE	604	1945-	uscs	12-22-55	28.2	45,200	4 -6-72	15.47	5,570
SACRAMENTU RIVER AT RESWICK	6468	1938-	USGS-UWR	2-23-40	47.2(0)	186,000	3-17-72	16.71	15,700
CLEAR CREEK AT FRENCH GULCH	115	1950-	u\$GS	12-22-64	13.7	7,600	1-22-72	8.07	2.040
CLEAR CREEK NEAR 1GO	228	1940-	uSGS	12-21-55	13.8	24,500	3-22-72	4.20	620
CON CREEK NEAR MILLVILLE	425	1949-	USGS	12-27-51	21.6	45,200	12-22-71	9.84	8,970
CUTTONWOOD CREEK VEAR COTTUNWUUD	922	1940-	USGS	12-22-64	13.0	60,000	1-23-72	9.39	4,670
BATTLE CREEK BELOW GELEMAN FISH HATCHERY GEAR CUTTONWUGO	358	1961-	USGS	12-11-37	15.8(AC)	35,000	2-29-72	5.01	2,390
SACRAMENTU RIVER A) BENO BRIOGE		1960-	OWR	1-24-70	43.3	158,000	2-29-72	26.60	32,100
PAYNES CREEK LEAR REO BLUFF	93	1949-	usus	12- 1-61	11.3	10,600		9.20	5,090(U)
REU BANK CREEK SLAR REO BLUFF	94	1948-	DWK	1- 5-65	10.1	9,730	12-22-71	4.42	40
A TELOPE CHEEN MEAR RED BLUFF	123	1940-	USGS	1-23-70	18.0	17,200	12-22-71	7.60	1,070
ELDER CREEK	93	1948-	usgs	2-24-58	13.9(0)	11,700	1-23-72	3.17	440
WILL CHEEK VEAR LUS MULINUS	161	1928-	USGS	12-11-37	23.4(A)	36+400	2-28-72	3.32	1,470
THOMES CREEK AT PASKENTA	194	1920-	USGS-Dwk	12-22-64	15.3	37,800	1-22-72	9.12	5+400(E)
DEER CREEN LEAR VINA	208	1∍11-15 1920-	USGS-DWK	12-10-37	19.2(A)	23,800	12-22-71	5.84	2,150
SACRAMENTO RIVER AT VINA BRIDGE		1945-	UWR	1-24-70 1-24-70	191.5(1)	171,000 228,000[L]	2-24-72	174.92	36,500
SACRAMENTO RIVON AI HAMILTON SITY [BEFURE SHASTA OAM]		1927-45	OWR	12-11-37	150.7(0,1)	350,000[E,L)		
SACKAMENTO RIVER AT HAMILTON CITY (AFTER SHASTA DAM)		1944-	Owk	1-24-70	(T)8.Cči	156,300	2-29-72	154.96	32,700
DIS CHICU CREEK GEAR CHICO	72	1930-	USGS	1- 5-65	15.4	9,580	12-22-71	5.56	1.220
STUNY CREEK IFAR FRUTU	598	1901-12 1960-	USGS	12-23-64	15.9	40,200	1-23-72	8.42	4,060
SIDHY CHEEK VEAR HAMILTO, CITY	777	1940-	USGS	2-25-58	16.3	39,700	4-29-72	7.05	5 0 0
SACKAMENTO KIVER AT OPD FERKY (ECFURE SHASTA DAM)		1921-43	DwR	2-28-40	121.7(11	370,000(t,L)		
SHCKAMENTU RIVER HI OKO FERKY (AFTEK SHASTA DAM)		1944-	DWR	1-24-70	119.0(T)	265+U001EL) 2-24-72	102.74	26,100
SIGNAMENTO RIVER AT BUTTE CITY (BEFURE SHASIA DAM)		1 9 2 1 = 4 3	USGS-OWK	2- 7-42	30.4	170,000			

•	DRAINAGE	. PERIOD	SOURCE		DF RECORD			1971-19 WATER '	YEAR
	SQ MILES	. RECORD	. RECORD	DATE	. STAGE .	DISCHARGE . IN EFS .	DATE .	STAGE IN FEET	. DISCHARGE . IN CFS
					AREA (CONTI				
SACRAME (CDNT I	ENTU RIVER	BASIN							
SACRAMENTO RIVER AT BUTTE CITY (AFTER SHASTA DAM)		1944-	USGS-0WR	2-20-58 1-24-70	96.7	160,000 225,000(L)	3 -1-72	78.04	27,500
MUULTON WEIR SPILL TO BUTTE BASIN		1935-	OWR	1-25-70 2- 7-42	83.6 83.8	36,400(8)			NG FLOW
COLUSA WEIR SPILL IO BUTTE BASIN		1935-	DWR	3- 1-40	70.6	86,000(8)			NO FLOW
SACRAMENTO RIVER AT COLUSA	12110	1940-	USGS-UWR	2- 8-42	64.2	49,000	3 -5-72	56.36	24,900
CULUSA BASIN DRAIN AT HIGHWAY 20		1924-	OWR	2-21-58	51.9	25,400(E)			A/A
BUTTE CREEK NEAR CHICO	147	1930-	USGS	12-22-64	14.1	21+200	1-22-72	3.71	1,870
BUTTE SLOUGH NEAR MERIDIAN		1968-	OWR	1-26-70	61.5(E)	152+000(E)	1-25-72	45.44	930
SUTTER BYPASS AT LONG BRIDGE		1914-	DWK	3- 1-40	57.7	210.000	STATIUN	01SCONT I	NUED
TISDALE WEIR SPIŁL TU SUTTER BYPASS		1940-	DWR	3- 1-40	53.3	25,700(0)	3 -5-72	45.62	280
SACRAMENTO RIVER BELOW WILKINS SEQUEM	12926	1938-	USGS	1-26-70 3- 1-40	50.7 52.8	29,300	3 -5-72	44.43	25,100
SACRAMENTO RIVER AT KNIGHTS LANDING		1921-39 1940-	USGS-UWR	1-26-70 2- 8-42	40.9 41.8(U)	30,800	3 -6-72	27.29	24,500
MIDOLE FORK FEATHER KIVER NEAR CLIO	686	1925-	U\$GS	2- 1-63	16.2	14,500	2-29-72	×.51	1,300
MIDDLE FORK FEATHER LIVER NEAR MERRIMAC	1062	1951-	USGS	12-22-64	26.5(A)	86,200	2-29-72	10.34	>+860
NURTH FURK FEATHER KIVER NEAR PRATTVILLE	493	1905-	usgs	3-19-07	16.2(0)	10,000	1-1d-72	5.75	1.180(F
BUTT CREEK BELUW MLMADOR-BUTT CREEK TUNNEL NEAK PRATTVILLE	69	1936-59 1964-	USGS	12-23-64	5.9	3,830	4 -5-72	1.79	410 (R
INDIAN CREEK NEAR CRESCENT MILLS	739	1906-18 1930-	USGS	3-19-07	20.2(0)	25.000	3 -4-72	7.70	3+180
SPANISH CREEK ABOVE BLACKHAWK CREEK AT KEOU!	IL 164	1933-	USGS	12-22-64	13.5	15,400	2-29-72	6.09	2,700
NURTH FORK FEATHER RIVER AT PULGA	1953	1910-	USGS	12-22-64	30.6	73.000(H)	3 -3-72	11.96	5,250
WEST BRANCH FEATHER RIVER NEAR PARADISE	R 110	1957-	USGS-DWK	12-22-64	20.2141	26.300	1-22-72	4.84	3.480
FEATHER RIVER AT ORUVILLE COEFURE ORUVILLE DAMI	3624	1894-67	USGS-UWR NDAA	3-19-07 12-22-64	28.2	230+000(E,P) 252+000(U)			
FLATHER RIVER AT ORDVILLE (AFTER ORUVILLE DAM)	3624	1967-	USGS-UWR	1-25-70	15.3	56,300(N)	4-27-72	1.88	2,26016
THERMALITU AFTERBAY RELEASE TO FEATHLR RIVER NEAR UKOVILLE		1967-	USGS-DWR	1-28-70	23.3	21,000	2 -6-72	7-21	11,500
FEATHER RIVER 4EAR GRIDEEY (BEFORE DROVILLE DAM)	3676	1929-67	USGS-Dak	12-23-55	102.2(1)				
FEATHER RIVER WEAR GRIDLEY (AFTER DROVILLE DAM)	3076	1967-	USGS-DWK	1-27-70	32.0(1)	74.00	2 -9-72	7).7)	11,600
SOUTH HONCUT CREEK NEAR BANGOR	31	1950-	USGS	12-26-64	1 +. 3	17,500	12-24-71	6.36	700

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. UR.	AINAGE .	PERIOD .	SUURCE .		TOUS MAXIMO UF RECORD			1971-1972 ANTER YEAR	2
STREAM AND STATIUN . ARI	MILES .	RECORD .	RECURD .	DATE .	STAGE . IN FEET .	DISCHARGE . IN CFS .	DATE .	STAGE . I . FEET .	DISCHARGE 1 v UFS
				AL VALLEY A	AREA (CONTI	NUEU)			
SACRAMENT (CUNTINU		BASIN							
FLATHER RIVER AT YUBA CITY	3974	1943-	USGS-DWR	12-23-64 12-24-55	76.4 62.4	172,000	2-10-72	45.39	(0)
NURTH YUBA RIVER BELOW GOODYEARS BAR	2>0	1930-	USGS	2- 1-03	1Alb.65	40,000	1-23-72	7.54	3,240
NURTH YUBA RIVER BELUM NEW BULLAROS BAR DAM	490	1 +40-	USGS	1-22-70 12-22-64	35.3 40.5[C]	56,200 91,500(M)	2-25-72	4.24	20
SCUTH YUBA RIVER	52	1942-	USGS	1-31-63	20.6(A)	18,400	5~14-72	6.40	1:457
SOUTH YUBA RIVER AT JONES DAR NEAR GRASS VALLEY		1940-48 1959 -	USGS	12-22-04	25.J(A)	53,600	1-23-72	9.55	2,780
YUBA RIVER ENGLEBRIGHT DAM	1108	1941-	USGS	12-22-64	546.1	171+0001K1			10 SPILL(6)
DEER CREEK HEAR SMARTVILLE	85	1955-	USGS	10-13-62	13.6	11,000	2 -4-72	6.77	1,630
YUFA KIVER NEAR MARYSVILLE	1307	1940-	USGS	12-22-04	90.2	180,000	12-25-71	64.43	5,190
BEAR RIVER NEAR WHEATLAND	292	1 728-	USGS	12-22-55 11-21-50	17.3(0)	33.000	2-25-72	9.47	: + : 28)
FEATHER RIVER AT NICULAUS	5920	1943-	USGS-UWR	12-23-55	51.6	357,000	2-26-72	29.02	14,100
FREMONT WEIR (WEST ENO) SPILL TO YOLU BYPASS		1934-	OWR	12-23->5	39.7	294,000(6)			VÚ FLOW
SACRAMENTO RIVER AT VERONA	21257	1929-	USGS-UWK	3- 1-40	41.2	79,200	3 -1-72	21.74	۹ ,000
SACRAMENTO WEIR SPIEL TO YOUU BYPASS NEAR SACRAMENTO	W- 400	1926-	USGS-Dwk	3-26-28 12-23-55	32.8 33.0	115,000toE			'VU FLOR
NORTH FURK AMERICAN RIVER AT NORTH FURK DAM	342	1941-	U S GS	12-23-64	11.9	65,400	1-25-72	3.24	3,620
RUEICON RIVER NEAR FURESTHILL	315	1958-	USGS	12-23-64	55.414,[]		2-27-72	9.12	1,140
MIDDLE FORK AMERICAN RIVER VEAR FURESTHILL	524	1958-	USGS	12-23-64	69.0(A,I)	316,000(1)			ANA
MIDULE FORK AMERICAN RIVER	614	1911-	usgs	12-23-64	60.4(A,1)	253,000111	2+29-72	9.60	3,350
SUUTH FURK AMERICAN RIVER NEAR CAMINO	493	1922-	uses	12-23-55	32.6(A)	47,800	4-24-72	6.00	70(R)
SOUTH FORK AMERICAN RIVER NEAR LOTUS	673	1951-	USGS	12-23-55	21.4	71,800	5-20-72	7.92	3+390(K)
AMERICAN RIVER AT FAIR DAKS (BEFORE FOLSOM DAM)	1888	1904-55	USGS	11-21-50	31.9(0)	180,000			
AMERICAN RIVER AT FAIR DAKS (AFTER FOLSUM DAM)	1888	1955-	usgs	12-23-64	21.0	115,000	2 -9-72	8.89	6,366
SACRAMENTO RIVER AT SACRAMENTU	23530	1879-	USGS+DWF NOAA	11-21-50	30.1(0)	104,000	3 -6-72	10.29	33,300
SACRAMENTO RIVER AT WALNUT GRUVE		1929-	OWR	12-25-64	12.2		12-28-71	5.26	(0)
ADDRE CREEK NEAR KELSEYVILLE	6	1954-	USGS	12-22-64	9• l	1,500	12+22-71	6.03	340
MEAR KELSEYVILLE	37	1946-	usgs	12-21-55	12.8	8,300	12-22-71	8.23	1.790
CACHE CREEK NEAR LUWER LAKE	528	1944-	USGS	2-24-58	7.4	8,000	7-14-72	3.65	490

	. DRAINAGE		. SCURCE	•	VICUS MAXIM OF RECURO		•	1971-19 WATEK Y	EAR
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				RAE VALLEY	AKEA [CONT]	NUEUI			
	MENTU RIVER	BAS1N							
NURTH FURK CACHE CREEK NEAR LOWER LAKE	1.17	1930-	USGS	12-11-37	14.0(A)	20,300	1-23-72	5.25	1.250
CACHE CREEK ABUVE RUMSEY	955	1960-	USGS-DWR	1- 5-65	21.4[4]	59,000	2 -5-72	4.90	1,100
C/CHE CREEK LEAR CAPAY	1044	1942-	USGS	2-24-58	20.9	51,600	2 -5-72	4 4 4	950
CACHE CREEK AT YULD	1139	1903-	u\$GS	2-25-58 3-10-04	85.4 88.4(P)	41,400	12-27-71	>2.13	920
YELD EYPASS		1939-	USGS-OWR	2- 8-42	32.0	272,000	2 -7-72	12.39	450
URY CREEK NEAR MIDDLETUWN	8	. 959−	USGS	2- 8-60	3.3	3,470	1-22-72	5.66	490
PLIAH EREEK JEAR WINTERS	574	1930-	USGS-DWR	2-27-40	30.5	81,000	7-16-72	8.22	760
YULD BYPASS "EAR LISHON		1914-	DWR	12-25-64	24.7	350,000(E)	12-29-71	6.03	(
SACRAMENTO KIVEK AT RIO VISTA		1906-	DWR	12-26-55	10.2	(0)	11-30-71	8.32	1
SAN J	DAQUIN RIVE	H BASIN							
WIELOW CREEK MT MOUTH NEAM AUBERRY	130	1952-	USGS	12-23-55	28.5[A]	15,700	12-22-71	8.24	530
SMN JUAQUIN KIVER BEEDW NERCHOFF PUWHKHOUSE MEAR PRATHER	1481	1942-	USGS-	12-23-55	51.0[A]	92,200	3-16-72	16.49	4,6001
SAN JOAOUIN RIVER DEEOH FRIANT	1076	1907-	uSGS	12-11-37 6- 6-69	23.8(CM)	77,2001M1 12,400	6 -6-72	2.72	210
SAR MENDUTA	4310	1939-	US8R-OWR	6-1-52 6-20-41	 13.8(C)	8,840 11,740[M]	8 -7-72	4.32	930
FRESNU RIVER JEAR KNOWLES	133	1911-13 1915-	u\$G\$	12-23-55	11.5	13,300	12 -6-71	3.35	220
FRESNO RIVER WEAR DAULTON	258	1941-	USGS	12-23-55	12.6	17,500	12-20-71	2.46	370
CHUWCHILLA RIVER VEAR RAYMOND	202	1959-	U\$GS	2-24-69	20.0(5)	13,760	12-26-71	4.91	630
CASTSIDE BYPASS VEAR EL NIUU		1964-	DWR	2-25-69	17.6	21,700			NO FLOW
SAN JUAQUIN RIVER AT FREMONT FURO BRIDGE	7615	1937-	OWR	2-26-69	68.1	9,180	2 -8-72	>6.41	390
MEREEU RIVEK AT PUHONU BRIDGE NEAR YOSEMITE	321	1916-	USGS	12-23-55	21.5[A]	23,400	6 -8-72	7.48	3,270
SUUTH FORK MERCEO RIVER NEAR EL PORTAL	241	1950-	usgs	12-23-55	18.7	46,500	12-22-71	9.34	2,940
MERCED RIVER NEAR BRICEBURG	691	1965-	uses	12- 6-66	17.8	21,500	6 -8-72	9.30	5,750
MERCED RIVER NEAR STEVINSUN	1273	1940-	uses	12- 5-50	73.d	13,600	2 -7-72	60.75	1,160
SAN JUAQUIN RIVER NEAR NEAMAN	9520	1912-	USGS-OWR	2-26-69	65.9[A]	34,700[[]	1-21-72	51.38	1,530
ORESTIMBA CKEEK NEAK NEWMAN	134	1932-	USGS	4- 2-58	6.6101	10,200			NU FLOW
SUUTH FURK TUDLUMNE RIVER NEAR DAKLAND RECREATION CAMP	87	1923-	USGS	12-23-55	10.9(A)	11,900	2-22-71	4.91	780
MIODLE TUOLUMNE RIVER AT DAKEAND RECREATION CAMP	74	1916-	USGS	12-23-55	11.8(A)	4,920	12-25-71	5.02	640
TUULUMNE RIVER AI MUDESIO	1884	1940-	USGS-DWR	12- 9-50	69.2	57,000	10-16-71	42.75	2,140

					2 (CONTINUED				
. ()RAINAGE	. PERIOO	. SOURCE	PRI	EVIDUS MAXIMI OF RECORD	UM	•	1071 1072	
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			CENT		AREA (CUNTII				
SAN JOAC (CUNTIN		ER BASIN							
SUUTH FORK STANISLAUS RIVER NEAR LONG BARN	67	1937-	USGS	11-21-50	9.3	4,900	5-12-72	4.81	790(R)
STANISLAUS RIVER AT ORANGE BLOSSUM BRIOGE		1928-39 1940-	DWR	12-23-55	31.8	62,000	12-28-71	6.99	2,580
STANISLAUS RIVER AT RIPON	1075	1940-	USGS-DWR	12-24-55 2-12-38	63.3 64.4(A)	62,500	12-28-71	44.61	2,090
SAN JOAQUIN RIVER NEAR VERNALIS	13540	1922-	USGS-DWR	12- 9-50 1-27-69	32.8(C) 34.6	79,000 52,600	12-30-71	13.79	3,430
DUCK CREEK NEAR STOCKTUN		1950-	DWR	12-24-55	5.8	400	12-28-71	4.84	320
SOUTH FURK CALAVERAS RIVER NEAR SAN ANUREAS	116	1950-	USGS	12-23-55	10.3	17,600	12-25-71	6.87	3,500
MURMON SLUUGH AT BELLOTA		1948-	OWR	4- 2-58	20.7	15,400(E)	12-25-71	7.87	2,030
SIDCKION OIVERTING CANAL AT STOCKTON		1944-	DWR	4- 4-58	17.1(E)	11,400(E)	12-25-71	8.62	1,650
CALAVERAS RIVER NEAR STOCKTON		1958-	DWR	1- 6-65	12.6	760(E)	12-26-71	4.47	70
NEAR LOCKEFURD	4 d	1930-	USGS	4- 3-58	15.1	2,930	12-25-71	10.92	480
COLE CREEK NEAR SALT SPRINGS DAM	20	1927-42 1943-	USGS	12-23-64	10.2	6,140	5-14-72	3.55	>40
SOUTH FORK MORELUMNE RIVER ACAR WEST PUINT	75	1933-	USGS	12-23-55	14.6(AC)	6,920	12-25-71	5.78	870
MURELUMNE RIVER NEAR MOKELUMNE MILL	544	1901-	USGS	12- 3-50	18.5	33,700	6 -2-72	5.77	2,700
MURELUMNE RIVER AT WOODBRIDGE	661	1924-	USGS	11-22-50	29.6	27,000	10-30-71	13.64	1,730
MIKELUMNE RIVLR IR THORNTON (BENSON FERRY)	2045	1911-	UHR-NOAA	12-24-55	13.0(0)	(0)	12-27-71	5.77	101
UKY CREEK NEAR GALT	329	1926-33 1944-	USGS-DwR	4- 3-56	15.3	24,000	12-25-71	12.01	2,300
NUMTH FORK CUSUMNES RIVER 4EAR EL OURADO	205	1911-41 1948-	USGS	12-23-55	14.8	15,800	4-13-72	4.71	800
MIDULE FORK CUSUMNES RIVER LEAR SUMERSET	167	19>7-	USGS	2- 1-63 2- 1-63	16.2 18.4(A)	11.800	STATION	UISCUNTINUEO	
SOUTH FORK CUSUMNES RIVER VEAR RIVER PINES	64	1957-	usos	2- 1-63	10.9	5,540	12-25-71	3.52	650
AT MICHIGAN BAR	536	1967-	USGS-DWK	12-23-55	14.6 16.3[A]		12-25-71	6.40	3,840
CUSUMNES RIVER AT MCCONNELL	724	1941-	USGS	12-23-55	46.3	54,000	12-25-71	38.97	4,170
TULARE I	AKE BAS	IN							
	247	1957-	USGS	12- 6-66	19.7(AC)	47,600	12-26-71	4.77	39011)
TULE RIVER CELO# SUCCESS DAM	393	1953-	uscs	12-23-55 11-19-50			7-22-72	5.75	420(R)
KAREAM KIVER IT THREE HIVERS	419	1958-	USGS		16.7 19.0(A)		6 -8-72	5.70	1.120
KINGS RIVER CELOW NORTH FORK	1342	1951-	USGS	12-23-55	23.1	85,200	6 -9-72	7.39	5,330[κ]
BUENA VI	ISTA LAK								
AT KERNVILLE	1009	1905-12 1953-	usGs	12- 6-66	19.3(A)	74,000	6 -9-72	4.95	1,100

•	ALVAGE	. PERION	. SUURCE	• P	REVIOUS MAXIM	IUM	. 1971-1972 . WATEK YEAK			
STREAM A 4U STATION . A.	REA IN	. RECORU	. RECORU	. DATE	. STAGE .	UISCHARGE	. 041E .	STAGE	• DISCHARGE • 174 UFS	
			NURT	HERN LAHO	NTAN AKEA					
HONEY LAK	KE DASIN									
NEAR SUSANVILLE	90	1950-	uses	2- 1-63	5.6	520	1-22-72	4.20	290	
SUSAN RIVER AT SUSANVILLE	184	1317-21 1950-	USGS	12-22-64	7.3	5,100	2-272	4.64	. 90	
PYRAMID A LAKES BA		EMUCCA								
LITTLE TRUCKEL RIVER ABOVE BOCA RESERVÜIK NEAR BOCA			USGS	2- 1-63	9.0	13+300	5 -0-72	2.5:	700	
TRUCKEE RIVER AT FARAO	932	1899-	USGS	11-21-50	14.5(A)	17,5G0	5-16-72	4.73	1,500	
CARSON KI	IVEK BAS	V 1								
EAST FORK CARSON RIVER THLD# MARKLEEVILLE CREEK	276	-0691	usas	1-31-63	10.2	15,100	5-31+72	4.06	1,760	
WEST FORK CARSON RIVER AT WOUDFORDS	66	1900-J7 1938-	U\$GS	2- 1-63	9.0	4,890	5 -5-72	2.62	39 0	
WALKER LA	AKE BASI	N								
WEST WALKER RIVER BELOW LITTLE WALKER PIVER NEAR CULEVILLE	160	1938~	USGS	11-20-50	8.1	6,220	5-31-72	4.42	.,620	
EAST WALKER RIVER NFAR BRIDGEPURT		1911-14 1921-	USGS	6-19-63	4.6	1,390	3 -4-72	2.24	340	
			SOUT	HERN LAHO	NTAN AREA					
18 SVALOM	IVER BAS	1.4								
MUJAVE RIVER AT LOWER NARRUWS NEAR VICTORVILLE			USGS	3- 2-38	23.7	70,600	12-24-71	5.83	2,440	
MOJAVE RIVER AT BARSTOW	1290	1930-	USGS	3- 3-38	8 • 6	64,300	12-26-71	2.44	430	
MUJAVE RIVER AI AFION	2120	1929-32 1952-	u\$GS	1-26-69	10.4	18,300	8-13-72	8.40	5, 00(+)	







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